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ABSTRACT

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LABOR TURNOVER, RACIAL UNEMPLOYMENT DIFFERENTIALS, AND THE DUAL LABOR MARKET HYPOTHESIS

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1. INTRODUCTION AND CONCLUSIONS

The research conducted under Manpower Administration Grant No. 91-17-72-32 represents an analysis of the decisions by firms and individuals which result in unemployment, with strong emphasis on the factors which result in higher unemployment rates among blacks than whites. The structure of the analysis differs in several respects from previous analyses; perhaps the most important difference is the development of a research strategy which permits the sources of racial unemployment differentials to be interpreted with reference to alternative theories of racial discrimination which have been advanced but not systematically tested in recent years. Thus, a by-product of the unemployment analysis is a test of the predictions of the alternative theories. Other important features of the analysis include an emphasis on (1) the role of variables which are subject to influence by labor market policy, (2) the <u>flow</u> of new unemployment as the crucial source of racial differentials, and (3) the determinants of racial unemployment differentials at different stages of the life cycle.

This final report consists of four chapters. The remainder of the first section will provide (1) an outline of the dimensions of the problem of racial unemployment differentials; (2) a review of the research strategies and findings of previous analyses of the problem; (3) a review of the explanations of racial unemployment differentials offered by competing theories of racial discrimination; and (4) a summary of the main conclusions and policy implications of the analysis.

The remaining chapters consist of three papers which have resulted

from the project. The first two form the core of the analysis of racial wage and unemployment differentials. A sophisticated view of the unemployment process must recognize that labor turnover and the resulting unemployment are not independent of the wage-setting practices of employers. In the racial context, the black-white unemployment differential should not generally be viewed as independent of the extent of wage discrimination in the labor market. Thus, Chapter 2, "Labor Force Experience, Job Turnover, and Racial Wage Differentials," examines the wage determination process for white and black males at different stages of the life cycle and analyzes the sources of racial wage discrimination. Particular attention is paid to the connection between an unstable past work history and the wage received by an individual, a relationship that is stressed particularly in dual labor market views of discrimination. Some of the results of the second chapter are then used in the analysis of racial turnover and unemployment differentials in Chapter 3, "Discrimination, Labor Turnover, and Racial Unemployment Differentials." The final chapter, "Segmented Market Theories and Racial Discrimination," examines more directly some of the ideas expressed in segmented market approaches to discrimination. This paper, which has already been published, examines particularly the idea that residing in a ghetto tends to restrict nonwhites to "secondary" jobs.

Approaches to the Problem

One of the standard observations in descriptions of racial differences in economic status is the persistent excess of black over white unemployment rates. Indeed, with the exception of the early phases of the most

recent recession, the aggregate ratio for males has stabilized at slightly over 2:1 since the mid 1950's. Moreover, the aggregate stability is apparently indicative of stable racial unemployment rate ratios among important labor force subpopulations, although there has been some tendency for the ratio for adult men to fall and the ratio for teenagers to rise secularly. /See Leigh and Rawlins/. A variety of approaches have been used to analyze the determinants of this differential, and in the remainder of this section the various methodologies and principal conclusions will be briefly reviewed.

Disaggregation of Raw Data

Perhaps the earliest approach was to decompose the aggregate racial unemployment rate differential and examine race differentials by level of schooling, age, occupation and region. The regularities in the data are briefly reviewed below.

Education. It is not clear, a prior, what the relationship between years of schooling and the racial unemployment differential should be. The most frequently-advanced hypothesis postulates a complementarity between schooling and specific on-the-job training which implies a reduction in unemployment with more schooling. (This argument depends on the notion that investment in specific training creates incentives to reduce labor turnover and hence the unemployment experienced by some fraction of quits or layoffs /see particularly G. Becker/). In the racial context, if one feature of labor market discrimination is that blacks receive less specific on-the-job training per year than whites, then (absolute) racial unemployment rate differentials should increase with years of schooling. The data

are not entirely congenial to this hypothesis.

Profiles of racial unemployment differentials by completed years of schooling are available from Census materials. A review of the data from 1940 to the present reveals a parabolic profile. For example, in an analysis of the 1940 Census data, H. Gilman found that in most occupations, nonwhite males with low levels of schooling had lower unemployment rates than white males, and whereas the unemployment rate for whites steadily declined with rising levels of education, the nonwhite rate increased with education through 9-11 years of schooling and then declined. Therefore the profile of $U_b - U_w$, where U_b and U_w are the black and white unemployment rates respectively, began with negative values at low levels of education, rose to a peak at the high school dropout level, and then declined.

This pattern has persisted at least through 1970. In Table 1, male racial unemployment differentials in 1950 and 1970 are compared by educational attainment. For each year, the difference is negligible at high and low educational attainments and reaches a peak in the high school drop-out category. The data for 1970 are graphed in Figure 1 and show that this pattern results from increasing unemployment among blacks with 8 to 11 years of schooling whereas white unemployment decreases throughout the range of schooling. Moreover, when a similar analysis was conducted for a sample of the population of low income areas in 1970, the same pattern is observed. This pattern is somewhat puzzling, for while the general downward trend in unemployment for whites is consistent with the hypothesis that specific training and general training (e.g. schooling) are complementary, this hypothesis does not explain the temporary divergence of black and white unemployment rates between

TABLE 1

Racial Unemployment Rate Differentials ($U_b - U_w$), by Education, U.S. Males, 1950 and 1970

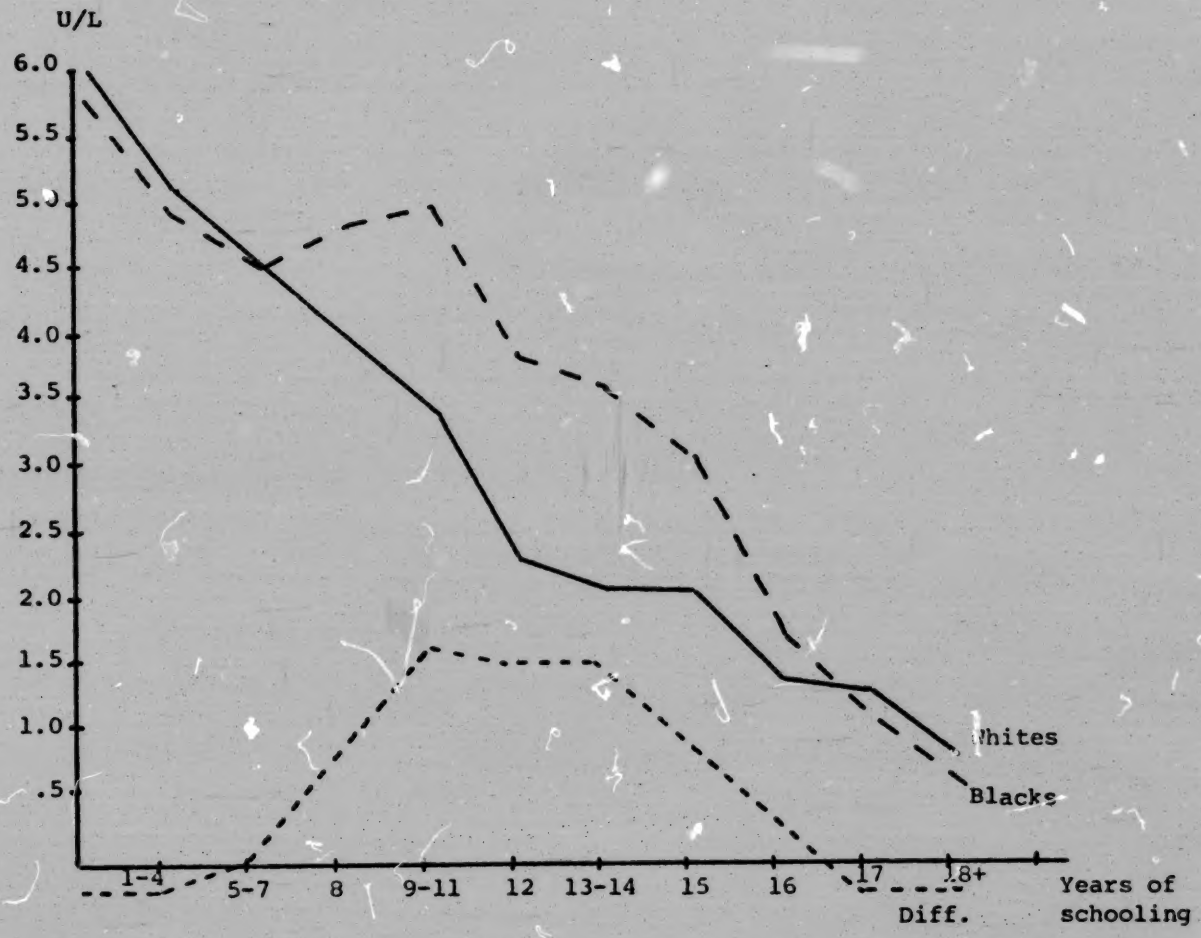
Years of Schooling	Full Population Sample		Low Income Sample	
	1950	1970	1970	Years of Schooling
0	- .2	- .2	-1.0	0 - 7
1 - 4	.3	- .2	.7	8
5 - 7	1.8	0	3.4	9 - 11
8	3.5	.8	2.4	12
9 - 11	4.7	1.6	.5	13 or more
12	4.4	1.5		
13 - 15	3.8	1.4		
16 or more	1.2	.1		
16	n.a.	.1		
17	n.a.	- .2		
18 or more	n.a.	- .2		

Sources: 1950 data - U.S. Census of Population, 1950, Special Reports, Education: Table 9.

1970 Data - U.S. Census of Population, 1970, Subject Reports, Educational Attainment: Table 5; U.S. Census of Population, 1970, Employment Profiles of Selected Low Income Areas, United States Summary, Urban Areas, Table 1.

FIGURE 1

Racial Unemployment Rates and Differentials,
by Educational Attainment, 1970



Source: U.S. Census of Population, 1970, Subject Reports: Educational Attainment: Table 5.

seven and sixteen years of education. The alternative hypothesis that employers use the degrees offered by the education system as credentials more persistently in the case of whites than blacks is also not well supported by the divergence of the unemployment experience at the level of the grammar school degree and through the high school degree.

The intergenerational dimension of unemployment differentials by educational attainment is illustrated in Table 2, where the data are arrayed by age groups for 1950 and 1970. Generally speaking, the shape of the profile is similar for each age group, although the peak unemployment differences are highest in the youngest age group (25-29). As in the aggregate data, the size of the unemployment differential for each age group is generally smaller in 1970 than 1950. Unfortunately, this observation does not greatly advance our knowledge of the causes of unemployment differentials generally, or the role of market discrimination in particular; the overall male unemployment rate was lower in 1970 than 1950, so that cyclical conditions alone could yield a narrower absolute differential, even if the two-to-one ratio was unchanged. The data in Table 2 also indicate slight differences in the level of educational attainment at which the unemployment difference peaked. At the youngest age group the peak unemployment differential was at a lower schooling level in 1970, whereas at older ages, the 1970 cohort tended to peak at slightly higher schooling levels than the 1950 cohort.

Age. One of the common observations in studies of racial discrimination is the tendency for white and black annual earnings to grow increasingly unequal with age, given the level of schooling. If this pattern were to be explained by growing differences in the utilization of blacks and whites over the life cycle, one would expect growing racial unemployment

TABLE 2

Racial Unemployment Rate Differentials, by Education and Age, U.S. Males, 1950 and 1970

	25 - 29		30 - 34		35 - 44		45 - 54		55 - 64	
	1970	1950	1970	1950	1970	1950	1970	1950	1970	1950
0	-1.4	.9	- .6	.8	- .7	-1.1	.8	.3	- .5	.6
1-4	-1.7	0	.2	.2	- .1	.3	- .5	.3	.3	.6
5-7	1.4	.6	- .7	1.4	.1	1.5	.4	1.3	- .2	1.3
8	5.9	4.4	1.2	3.1	.9	3.3	.6	2.3	.2	2.8
9-11	2.0	5.8	1.2	3.5	1.3	4.4	1.3	3.3	1.0	2.5
12	2.1	5.6	1.3	4.7	1.7	4.0	1.2	2.8	.1	3.9
13-14	2.3	4.8	1.9	4.9	1.4	4.0	1.2	.4	1.1	3.8
15	.5		.5		1.7		.9		.5	
16	.0	0	.1	3.0	.8	.9	.5	.8	- .1	1.7
17	0		2.2		- .5		-1.4		- .5	
18+	.3		0		.1		- .3		- .6	

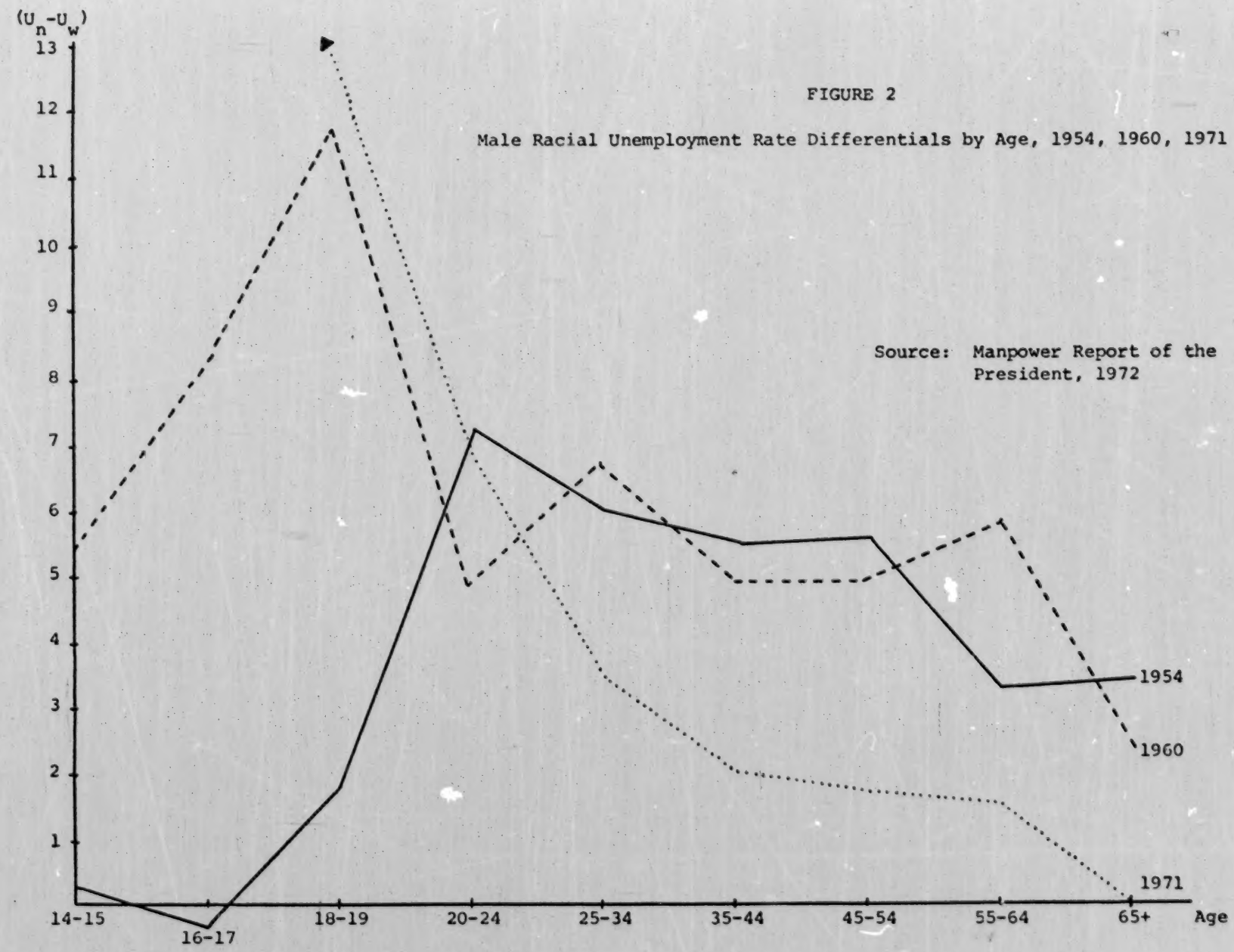
Sources: See Table 1.

differences with age (along with increased racial differences in extent of part-time work or weeks worked). Contrary to the characteristic pattern of age-earnings profiles, however, age-unemployment profiles indicate that racial unemployment differentials narrow with age. (See Table 2 and Figure 2). As is well-known, race-specific unemployment rates peak early and then decline rapidly to a plateau beginning around thirty-five years of age. There is further decline at the oldest age groups.

The racial unemployment rate difference ($U_b - U_w$) also reveals this pattern as illustrated in Figure 2. However, it is clear that the latter profile is a comparatively recent phenomenon which has developed since the mid-fifties. In order to minimize the influences of differential cyclical conditions on the comparisons, the data graphed in Figure 2 were chosen for postwar years in which the aggregate male unemployment rate was 5.3 - 5.4 percent. The data indicate that over the period in which the racial unemployment rate difference was widening for younger age groups, it was narrowing for older groups. These data imply, first, a narrowing of the race differential for new cohorts in each age group over 24 years. This may, or course, imply that in each successive cohort there is greater racial equality of characteristics which reduce unemployment exposure or a decline in employer policies which contribute to unemployment differentials. Nevertheless, the data also imply a narrowing in racial unemployment experience with the aging of a given cohort. For example, the 25 - 34 year old cohort of 1960 by and large becomes the 35 - 44 year old cohort of 1971, and so on. On the evidence of 1960 to 1971, one additional decade in the labor force is associated with a narrowing of the racial unemployment rate differential by at least three percentage points for

FIGURE 2

Male Racial Unemployment Rate Differentials by Age, 1954, 1960, 1971



Source: Manpower Report of the President, 1972

cohorts over 24 years of age.

In terms of the earlier decomposition of an unemployment rate, the fact that race-specific unemployment rates decline with age can reflect a decline in either the incidence or the duration of unemployment with age. With respect ot the former, there is ample evidence of inverse relationships between age and labor turnover /e.g. Chapter 3 of this report/. On the other hand, the average duration of unemployment seems to rise with age /see, for example, G. Green and J. Stinson, Table A-14/. Thus the effect of declining turnover with aging and experience (and presumably a declining probability of incurring unemployment given turnover), overwhelms the effect of increasing duration of unemployment per spell.

Cross-section Analyses of Unemployment Rate

As a point of departure for more extensive analysis, note that a relatively high black unemployment rate can reflect (1) racial differences in labor force distribution (i.e., blacks may be disproportionately represented in occupations and industries in which all workers have relatively high unemployment rates) and/or (2) a higher unemployment rate for blacks within a given occupational category. Conceptually, one can first determine the amount of the unemployment differential which can be removed via standardization for skill, etc., and then to determine the source of within-category unemployment variation by race.

To some extent this has been attempted in two papers by H. Gilman. In the first /Gilman, 1963/, Gilman examined the time series behavior of racial unemployment rates to evaluate the "last-hired, first-fired" proposition. His study reveals the fairly obvious proposition that when

the racial unemployment ratio is stabilized at 2:1, the cyclical variation of unemployment in absolute numbers is greater for blacks than for whites. When the analysis is conducted by occupation, Gilman finds that the differential changes in male unemployment by race are smallest in low skill groups where most blacks work. The racial differences in the standard deviation of unemployment do seem to increase as one moves into the more skilled occupations. These observations lead Gilman to conclude in his earlier paper that most of the racial unemployment differentials are attributable to racial differences in the occupational and industrial distribution of the labor force.

Gilman's later article /Gilman, 1965/ deemphasizes somewhat the amount of the racial unemployment rate differential eliminated by standardization. He notes that in 1940, 1950, and 1953-61 the absolute race differential is smaller for unskilled or semiskilled workers than for skilled and white collar, which is consistent with his earlier findings. Nevertheless, occupational standardization removed most of the differential in 1940 but less in succeeding periods. Gilman then contributed a regression analyzing the inter-occupational dispersion of unemployment rates which indicated that after controlling for the influence of schooling, age, percent wage and salary worker, and expected unemployment given the industry mix, blacks have a higher unemployment rate in white-collar jobs, but do not have a significantly higher rate in unskilled jobs. In general the standarization efforts eliminated only half of the post-war racial unemployment differential.

Gilman also discovered a puzzling regional pattern in the unemployment differentials: the race differential is larger in the North than in the South, and occupational standardization "explains" a larger fraction

of the male race differential in the South than elsewhere. Moreover, in the South the race differential is small or negative at both ends of the skill distribution but is substantial in the middle. The general finding of smaller differentials or unexplained differentials in the South is contrary to the predictions of the theory of discrimination, since prejudice is more intense in the South (unless wage discrimination and occupational segregation are more easily practiced in the South than elsewhere).

Additional cross-section evidence on the problem of black-white unemployment differentials is provided by R. Hall. In examining the relatively high U.S. "full" unemployment rate, Hall finds little evidence supporting the traditional structuralist view of extensive chronic long-duration unemployment. In a study of the determinants of the total amount of unemployment experienced by an individual over the course of a year, his analysis indicates that (1) there are very few "discouraged workers" in a full employment year, (2) very few people who are out of the labor force for "unusual" reasons (i.e., other than health, retirement, etc.) are out for long periods of time, for follow-up surveys indicate re-entry within four weeks, (3) city unemployment rates vary directly with wages, (4) among measured unemployment rates only a small percent of total unemployment is of very long duration, (5) the main reason for the high U.S. unemployment rate at "full employment" is turnover related unemployment. Hall generated a hypothetical nominal unemployment rate by making several assumptions about the number and average lengths of job searches by individuals of various ages. The actual unemployment rates for the white demographic groups (except for

women 25+) are less than the hypothetical while black unemployment rates are normally higher.

Analyses Based on the Incidence and Duration of Unemployment

The problem discussed in this section is the appropriate method of analyzing the within-sector racial unemployment rate differentials which remain after standardization for occupation. (The papers by Gilman discussed above indicate that intra-occupational differentials may account for as much as half of the total differential). For many years, economists tended to emphasize problems on the demand side of the labor market as the main sources of the race differential. (The older literature is replete with statements implying that blacks are the last hired and the first fired or that once unemployed blacks incur a much longer period of unemployed job search before finding an employer who will hire them.) Most "explanations" of the differential implied large racial differences in the average duration of unemployment.

However, the point of departure for this study is the surprising finding in a series of recent papers that several important unemployment rate differentials, including the race differential, largely reflect differences in the flow or incidence of new unemployment per week rather than differences in the average length of unemployment. /See R. J. Flanagan, R. Hall, C. Holt and R. Smith, G. Perry./ Contrary to the implications of most ad hoc assertions, the average duration of unemployment exhibits little variation between the races. The similarity is revealed in Table 3 by the data on the average duration of unemployment

TABLE 3

Mean Duration of Current Unemployment of Survey Respondents (in weeks)

	1968	1969	1970	1971	1972
White Males	9.4	8.5	9.5	12.3	13.3
Nonwhite Males	9.5	8.7	9.5	12.5	13.5
White Males, 16 - 19	6.2	5.6	6.5	8.6	n.a.
Nonwhite Males, 16 - 19	6.5	6.8	7.3	8.5	n.a.

Sources: U.S. Bureau of Labor Statistics and Green and Stinson.

at the time of labor force survey by race for recent years.* Particularly for males, the racial differences are very small relative to the unemployment rate differentials.

Thus, the problem of within-sector racial unemployment differentials becomes largely a question of explaining why the proportion of the labor force becoming unemployed each week is larger for blacks than whites. For example, the incidence of unemployment can be defined as

$$I = \alpha q + \beta l + \gamma e$$

in which I is the proportion of the labor force becoming unemployed each week, q is the quit rate, l is the layoff rate, and e is the gross labor force entry rate, and α, β, and γ are the proportions of each turnover flow actually incurring unemployment. In contrast to traditional approaches to analyzing unemployment problems, the facts about the nature of racial unemployment rate differentials indicate that the key to an explanation is to be found in the determinants of racial differences in the turnover flows which can result in unemployment and the probability of incurring unemployment, given that one has quit, entered the labor force or been laid off. Thus, the analysis of racial unemployment differentials must begin with an analysis of the choices of individuals and firms which generate the turnover flows which lead to unemployment. This is the approach adopted in Chapters 2 and 3 below. Moreover this revealing decomposition of racial unemployment differentials implies that future labor market policy should be directed at the determinants of labor

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*The average duration of completed spells of unemployment is generally lower in the United States, because the probability of remaining unemployed an additional week increases with the duration of unemployment. See H. Kaitz for an elaboration of this point. It is not known whether the pattern of unemployment continuation probabilities, and hence the duration of completed unemployment spells, differs significantly by race.

turnover, when the amount of turnover seems in excess of what is required for the normal allocation of resources in an efficient economy.

Discrimination Theory and Racial Unemployment Differentials

In seeking explanations of racial differences in the flow of new unemployment, it is natural to seek guidance from received economic theories of discrimination against minorities. Two main approaches to the theoretical analysis of discrimination have dominated the economics literature in recent years -- the utility analysis approach and the labor market segmentation approach.*

The former approach introduces prejudice into economic analysis by treating the racial composition of the workforce as a condition of employment /See particularly K. Arrow and G. Becker (1971)/. Thus, employers are interested in maximizing profits and minimizing the proportion of minorities in the work force. Thus, an employer will hire minorities only if he is compensated for his prejudice. In this model, blacks will only be hired if they accept a lower wage rate than whites of similar productivity. The limited unemployment implications

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*The theoretical literature on imperfect competition suggests another approach -- the theory of a discriminating monopsonist. While this theory does predict different wage rates and employment levels for groups of equally-qualified workers, the source of these differences is inter-group differences in the elasticity of labor supply rather than elements of prejudice. This model has not found widespread application in the analysis of racial discrimination in part because a general abandonment of the competitive assumption of perfectly elastic factor supply does not seem warranted, and in part because the observed elasticities of supply for white and black workers at times imply a wage differential in favor of blacks. In the context of the present study, a further disadvantage is that the discriminating monopsonist approach does not yield any strong implications for the analysis of racial unemployment differentials.

of this model are quite simply; blacks should not incur unemployment with greater frequency than whites as long as they accept a sufficiently low wage differential so that the employer is bribed for his prejudice. In other words, this model predicts that racial unemployment rate differentials will be smallest in markets with the fewest barriers to wage discrimination against minorities. The main problem with this approach is the demand orientation of the analysis. It ignores the effect of discriminatory behavior on labor supply choices (e.g., quits and labor force entry) and the unemployment associated with these choices. The nature of these deficiencies is examined at greater length in Chapter 3.

A variant of the utility analysis approach is the theory of occupational segregation or crowding of minorities into lower paying occupations /see, for example, B. Bergmann/. As in the theory of discrimination within an occupation, a prejudiced employer will hire minorities but restrict them to certain lower paying job categories, irrespective of their actual productivity. The main barrier to employment in this model is the refusal of minorities to accept jobs for which they would be overqualified. Once employed, however, the main or implied explanation of racial unemployment rate differentials is racial differences in the distribution of employment: i.e., by implication blacks have a relatively high unemployment rate because they are restricted to occupations in which all races experience higher unemployment. However, as Gilman's work indicates, this is only half the explanation.

The most recent labor market segmentation analysis of discrimination proceeds from a somewhat different argument. The segmentation arguments /see, for example M. Piore/ deny the role attributed to wages in most

traditional economic analysis, by asserting the importance of various market imperfections. Whereas the analysis of labor markets under competitive conditions emphasizes the role of inter-occupational wage differentials in compensating for the differential costs of working in alternative occupations (e.g., schooling and training costs, seasonality of employment, nonpecuniary disadvantages of work, etc.), modern segmentation hypotheses assert that the high wage jobs are also jobs with favorable nonpecuniary conditions of employment, while the low-wage jobs are also unappealing in most nonpecuniary respects. In the dual market version (discussed and evaluated at greater length in Chapter 4), the former jobs characterize a primary sector in which turnover is low, while the latter jobs characterize a secondary sector with considerable, aimless, employee turnover and job instability. Two aspects of the dual market hypothesis are of particular interest for the study of racial unemployment differentials and the formulation of effective remedial labor market policies. First, the emphasis which the dual market hypothesis places on differences in labor turnover between the primary and secondary sectors coincides with an important feature of racial unemployment differentials, although this rough correlation does not imply causation. To the extent that blacks are restricted to "secondary" jobs they would have higher turnover and unemployment. On the other hand, it should be noted that the role assigned to turnover in the segmentation models differs strongly from the role of turnover in the recent optimal search literature, in which quitting is for the purpose of job search and normally yields a wage increase. In the segmentation literature the barriers between sectors

are believed to minimize the probability that job changing will yield a wage increase. (This important feature of the modern segmentation literature is examined in Chapters 2 and 3.)

The second crucial feature of the segmentation theories is the nature of the barriers which segment the labor market. These barriers form the crux of any segmentation theory, for the competitive model of compensatory wage differentials fails and segmentation results when mobility between (primary and secondary) sectors is precluded. Thus any theory of segmentation is ultimately rooted in the sources of labor market immobility. Once these are clearly specified, then policies which erode the barriers or mitigate their effects can usually be formulated. In many of the recent segmentation hypotheses the nature of the barriers to labor market mobility are not delineated clearly, despite the importance of the issue. To take an extreme example, if employer prejudice were said to be the root of market segmentation, the dual labor market approach would reduce to the utility analyses of discrimination within and between occupations discussed earlier. In Chapter 4, one potentially important barrier to primary sector jobs--the fact of ghetto residence which is said to breed unstable, costly work habits in nonwhites--is assessed using evidence from Chicago and Detroit.

Conclusions and Policy Implications

The issues outlined in the foregoing pages are discussed along with methodological and technical details of the research in detail in Chapters 2 - 4. As an aid to the reader, the main conclusions of the

study are summarized below along with policy implications

Because of the importance of assessing the relevance of contemporary theories of discrimination to unemployment flows, the empirical analysis of the study was structured to elucidate links between the wage discrimination and racial unemployment.differentials. Thus, Chapter 2 contains an analysis of the wage structure for whites and blacks with emphasis on the apparent sources of racial wage differentials. In Chapter 3 measures of wage discrimination developed in Chapter 2 are used with other determinants to analyze racial differences in quits, layoffs, and the probability of incurring unemployment. Chapter 4 moves from the unemployment analysis to a more explicit examination of some of the barriers said to be of importance in generating segmented labor markets. The analysis in Chapters 2 and 3 utilizes National Longitudinal Survey (NLS) data for two cohorts of males aged 14 - 24 and 45 - 59 respectively in 1966. The analysis in Chapter 4 utilizes data for 1960 census tracts in Chicago and Detroit. The main conclusions follow.

1. After holding schooling, training, experience region, past work history, etc. constant the net racial wage differential was 16 percent for the older NLS cohort and 6 percent for the younger cohort. For both cohorts the main sources of the differential were racial differences in the monetary returns to additional schooling and living in the South. (Chapter 2)

2. The total or gross racial wage differential reflects differences in human capital endowment, regional or industrial distribution of employment, etc. as well as the racial differences in the price received for a given characteristic. Differences in years of completed schooling

and the proportion of each race living in the South were the major sources of the gross racial wage differential. (Chapter 2)

3. Of the alternative post-school activities, it is clear that formal training programs are not the only source of productive experience. Firm seniority, for example, yields a substantial wage differential for young workers in particular. Nevertheless, the wage differentials associated with formal training are usually the largest of the post-school alternatives and are relatively large for blacks. Paradoxically, the level of training investment is relatively low for blacks. This paradox is somewhat resolved for the older cohort by the fact that blacks seem particularly deficient in the training controlled by firms. (Chapter 2)

4. Compensatory post-school training investments do not seem to be the main road to racial wage equality among the male samples in the NLS. Although the effect of post-school investments is usually to narrow racial wage differentials somewhat, differences in the level and return to these investments are a relatively minor source of the race differential in comparison to schooling, southern residence, and marriage. In the analysis of training, differences in the wage paid to whites and blacks for a given amount of training were more important determinants of the race differential than differences in the amount of training received. Thus, the impact of additional training on racial wage differentials will be rather small until discriminatory practices in the labor market which result in the racial price differentials are removed. Even with a color-blind labor market, however, the effect of additional training does not appear to be large. (Chapter 2)

5. The analysis does not support the segmentation view that race

differentials are largely the result of the restriction of blacks to low-wage, high-turnover jobs. The turnover behavior alleged to be an important characteristic of secondary labor markets in the recent segmented labor market literature is not a consequential source of racial wage differences for either cohort, although the return to job-changing are nonexistent in the younger cohort. On the other hand, these returns are positive and tend to narrow racial wage differentials for the older cohort. Indeed, for the older cohort, recent job changing is associated with high wage rates, and the magnitude of this effect is about twice as high for blacks. Thus, the finding of a positive association between job changing and the subsequent wage rate for this cohort is more consistent with optimal search views of turnover than segmentation views. (Chapter 2)

6. Skepticism about the validity of the dual labor market model of segmentation as a description of the sources of racial differences in economic status is increased by the results of the turnover and unemployment analysis. If secondary jobs existed and were assigned to blacks, dual higher turnover rates should be observed among blacks. The NLS permits the first racial comparison of quit and layoff rates, and in Chapter 3 we find that these are remarkably similar! The quit rates are virtually identical and in the absence of wage discrimination and occupational segregation, the white quit rate would exceed the black quit rate. There is some evidence that the black layoff rate of somewhat higher than the white rate.

7. Contrary to the standard utility analysis of discrimination, the regression analysis indicates that accepting a wage or occupation below that dictated by experience and training does not afford protection against layoff for blacks. However, the effect of wage discrimination and occupational

segregation is clearly to raise the probability of black quits, and the magnitude of this effect is particularly large among younger workers. Thus, the net effect of labor market discrimination is to raise the total separations rate for blacks ralative to whites. (Chapter 3)

8. The main factors accounting for racial differences in the flow of new unemployment for males are the higher layoff propensity among blacks and the fact that black quits are more likely to incur unemployment than white quits. The probability of incurring unemployment is about the same for blacks and whites who are laid off their job. (Chapter 3)

9. The results are not consistent with the view that blacks are inherently less stable employees, but for the younger cohort there is some evidence that blacks are assigned to relatively unstable jobs. (Chapter 3)

10. The monetary returns to schooling and experience are not usually low for nonwhites living in highly segregated urban areas. Analysis of data for Chicago and Detroit indicate that if anything the return to schooling seems to be higher for nonwhites living in relatively segregated census tracts. This finding is not consistent with the view that residing in a ghetto results in the development of costly, unstable work habits. On the other hand, the finding cannot be interpreted as indicating no differences in economic status between nonwhites who live in the ghetto and nonwhites living in less segregated areas. In fact, the set of chacteristics (particularly level and quality of schooling) that an individual brings to the market is influenced by urban housing segregation. However, for a given set of characteristics, the market productivity of blacks is apparently not depressed by the fact of ghetto residence. (Chapter 4)

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LABOR FORCE EXPERIENCE, JOB TURNOVER, AND RACIAL WAGE DIFFERENTIALS

by

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After over a decade of research, the determinants and some of the consequences of measurements of racial wage discrimination or discrimination coefficients are still a matter of professional debate. In part this is a consequence of the residual nature of many of the reported measurements; in part, the reported persistence of racial wage differentials despite the general equilibrium predictions of the standard utility analysis of discrimination have reinforced broader dissatisfactions with the state of wage structure theory. One strain of the debate, which has been sustained by substantial public investment in education and training, concerns the emphasis which should be given to theories in which individual wage differences depend on the magnitude and timing of investments in schooling, training, information and other forms of human capital.

The purpose of this paper is to determine the influence of alternative forms of human capital investments, relative to other contributory factors, on observed racial differences in hourly wage rates. Clearly a part of the gross racial wage differential is attributable to a relatively low black endowment of schooling, training, experience, etc. But within the limitations imposed by the data, these influences are normally held constant in studies which use a dummy variable for race to measure a net racial wage differential.

The dummy variable approach, however, obscures the sources of measured discrimination coefficients by assuming the same wage structure for each race, whereas residual racial wage differentials reflect the fact that a given characteristic is paid a different price depending on the race of an individual. Although many contemporary public policy efforts are directed toward narrowing some of the differences in endowment, much of the gross differential is attributable to the difference in wage structures, about which surprisingly little is known beyond the observation that the rate of return to schooling is lower for blacks than whites. In this paper the analysis of discrimination coefficients will be extended by an detailed decomposition of the gross race differential into differences in endowment and differences in wage structure.

Although the analysis is restricted to males, it is applied to random samples of two age groups for which racial wage differentials diverge considerably. The samples consist of men aged 15 to 25 years and 46 to 60 years in 1967 respectively and are drawn from the National Longitudinal Surveys of these cohorts. Cross-section earnings-experience profiles show that with schooling held constant, the racial earnings gap is smallest for individuals in their early market experience! Moreover, recent evidence indicates that the advances in relative economic status made by blacks during the sixties were mainly in the younger age groups, while older blacks made very little relative advance (Freeman, 1973).

The results also elucidate the role of recent job turnover on the wage rates of whites and blacks. Interest in this relationship stems from the contemporary debate over the role of turnover, particularly quit behavior,

in the labor market. Developments in search theory treating information as an investment predict that quits will normally lead to higher wage rates, whereas recent segmented labor market formulations view turnover as a characteristic of jobs and workers in a secondary labor market in which wage and occupational advancements are limited. In these latter hypotheses turnover is often symptomatic of movement from market to nonmarket activities of varied legality which yield more satisfactory returns.

Specification of Human Capital Investments

Past studies of the wage structure, lacking data on explicit forms of human investment, have relied upon years of potential labor force experience as a proxy for human capital accumulation and have chosen functional forms which capture the profile of an optimal lifetime investment pattern. Although it is commonly observed that for a given schooling level, the experience-earnings profile of blacks is lower than for white males, this result is consistent with several possibly complementary hypotheses. Blacks may not invest as much in themselves (possibly, as with schooling investments, because the return to such investments is lower than for whites). Secondly, firms may not invest as much in blacks, either due to prejudice or to personnel decisions based on criteria which generate "statistical" discrimination. The relatively flat profile for blacks may also reflect occupational segregation -- a preference for promoting whites over blacks of similar qualifications. Finally, a given number of years since school completion is consistent with great variety in the quantity and quality of market and nonmarket experience, as recent analyses of male-female wage differentials have emphasized.

In pursuing the influence of human investments in racial wage differentials, the emphasis of this paper shifts from the contribution of alternative schooling investments, which has already received considerable attention, to alternative varieties of post-school experience. Although the role of schooling is not ignored, primary emphasis is on the following questions: What types of post-school experience yield the highest return? To what extent does the investment in and returns to alternative forms of labor market experience tend to widen and narrow racial wage differentials? For the samples available, the data provide information on the following types of human capital investment: years of schooling, length of experience with the respondent's current employer, length of labor force experience with other employers, and length and composition of post-school training.[2] Within each cohort these issues were pursued by estimating regressions of the log of the hourly wage rate on human investments and several other characteristics (all variables are defined in Table 1).

Several experiments were performed to determine the appropriate specifications for the human capital investments associated with employment experience before the final wage equations were estimated. As expected, given the age range of the samples, the familiar quadratic specification of potential labor force experience (age minus years of schooling minus school entry age) was not significant. However, the data permit a more detailed investigation of the productivity of alternative post-school investments. One issue which was examined was whether formal training programs represent the major form of investment associated with labor force and firm experience. In the initial experiments, regressions were run to determine whether years of training and

years of experience (seniority) with current employer had separate influences on wages. For both cohorts and for each race, the two variables have strongly independent effects. The coefficients of each variable remained insensitive to the addition of the other in wage equations, and the precision with which each of the coefficients was measured increased when both variables were included in the regression. A second finding of the experiments on the older male sample was that while the linear specification of the firm experience or seniority variable was superior, a quadratic specification of the total years of training variable produced better results. Additional years of training first increased but later had a negative influence on the wage rate![3]

In the younger male cohort, the quadratic specification was preferable for both total training and firm experience (or firm seniority) for whites but for the total training variable only for blacks. Contrary to the findings for older males, the quadratic earnings-training profile reflects diminishing returns to some types of training as well as the composition of training itself. For this sample, other labor force experience, defined as Age-Firm seniority-schooling-school entry age, is also significant.

Following contemporary human investment theory, an individuals wage should also reflect investments in information and migration. Since no persuasive direct test of a respondent's knowledge of labor market alternatives was available, the analysis was restricted to variables for the number of years in current residence and distance moved over the past year, which reflect recent migration. However, knowledge of local employment and wage options should increase with the length of time spent in a labor market, and the coefficients on these variables may reflect returns to information

as well as returns to migration. On the other hand, the variables may also reflect the influence of nonpecuniary returns to one's present location and thus be associated with lower earnings.

Results

On the basis of these experiments, wage equations were run for each cohort on samples of blacks, whites, and both races. Regressions with the total training specification are reported in Tables 2 and 3.[4] Mean values of the explanatory variables are included with the regression coefficients for each sample.

Blacks generally report smaller school and post-school investments than whites. In the case of schooling, the relatively low investment appears rational in the sense that for both age groups, the return to schooling for blacks is one-third the return to whites. For post-school experience and training, however, black investments are lower despite the fact that the measured returns to firm experience and total training are higher for blacks. When the influence of specific sources of training is examined it is clear that (a) on average, blacks acquire less training than whites in all training categories, (b) for the older male cohort the ratio of black to white training is lowest for the company training--the only category controlled by employers, (c) for older males the returns to training by category are larger for blacks than whites, although the estimates for blacks all fall below normal standards of statistical significance, (d) training in the armed forces and in post-school vocational and apprenticeship programs shows the smallest and least significant relationship to earnings and (e) for the younger cohort, only company and miscellaneous training are significant, and the returns for these categories seems larger for blacks than whites.

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TABLE 1

DESCRIPTIONS OF VARIABLES

Variable Name	Description
SCHOOL	Years of school completed.
FIRM EXP	Years (months for younger cohort) employed with current employer.
LF EXP	Months since leaving school minus FIRM EXP.
TRAIN	Total months of training at company training schools, in business colleges or technical schools, in general courses, in vocational or apprenticeship programs, in armed forces vocational training.
SOUTH	Dummy variable for southern residence.
WEST	Dummy variable for western residence.
HEALTH	Dummy variable = 1 if respondent says health limits kind of work.
MIG 1	Years in current residence.
MIG 2	Miles between 1966 and 1967 residence.
MARRY	Dummy variable = 1 if married with spouse present.
NO. JOBS	Number of employers in past year.
GOVT	Dummy variable = 1 if employed in government.
CONSTR	Dummy variable = 1 if employed in construction.
RACEDUM	Dummy variable = 1 is respondent is black.

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TABLE 2

HOURLY WAGE RATE REGRESSIONS, MALES, 45-59

(Absolute value of t Statistics in Parentheses)

	Blacks and Whites	Means	Blacks	Means	Whites	Means
CONSTANT	4.8629		4.9029		4.7004	
SCHOOL	.0483 (21.76)[a]	9.39	.0238 (6.68)[a]	7.119	.0604 (21.73)[a]	10.39
FIRM EXP	.0121 (16.64)[a]	14.22	.0139 (10.40)[a]	13.47	.0113 (13.23)[a]	14.54
TOTAL TRAIN	.0047 (5.39)[a]	8.47	.0072 (3.02)[a]	5.09	.0043 (4.50)[a]	9.99
TOT TR^2	-.00003 (3.25)[a]	353.2	-.00008 (1.97)[b]	170.00	-.00003 (2.76)[a]	433.52
SOUTH	-.1796 (5.41)[a]	.36	-.3359 (12.20)[a]	.58	-.1032 (4.88)[a]	.26
WEST	.1225 (5.15)[a]	.14	.1003 (3.22)[a]	.06	.1419 (5.75)[a]	.17
HEALTH	-.0965 (5.15)[a]	.18	-.0232 (.71)	.17	-.1239 (5.54)[a]	.19
MIG 1	-.0011 (5.41)[a]	42.89	-.0010 (2.91)[a]	45.16	-.0008 (3.45)[a]	41.90
MARRY	.1856 (8.07)[a]	.88	.1364 (4.28)[a]	.81	.2301 (7.30)[a]	.92
NO.JOBS	.0411 (3.62)[a]	1.177	.0776 (4.32)[a]	1.18	.0325 (2.28)[b]	1.17
GOVT	-.0088 (0.46)	.19	.0838 (2.61)[a]	.199	-.0518 (2.23)[b]	.18
CONSTR	.2578 (11.23)[a]	.13	.2600 (7.06)[a]	.149	.2541 (8.90)[a]	.11
RACE	-.1624 (2.10)[a]	.30				
R^2	.4036		.3490		.3250	
St. Error	.4131 (n=3273)		.3879 (n=998)		.4145 (n=2275)	

[a]Significant at 1% level.

[b]Significant at 1% level.

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TABLE 3

HOURLY WAGE RATE REGRESSIONS, MALES 14-24

(Absolute Value of t Statistics in Parentheses)

	Blacks and Whites		Blacks		Whites	
CONSTANT	4.6806	Means	4.3626	Means	4.5469	Means
SCHOOL	.0544 (14.76)[a]	11.32	.0434 (6.42)[a]	10.36	.0594 (13.70)[a]	11.72
FIRM EXP	.0068 (6.42)[a]	18.36	.0042 (2.22)[b]	14.63	.0076 (5.81)[a]	20.64
FIRM EXP^2	-.00004 (3.72)[a]	753.7	-.00002 (1.32)	532.89	-.00005 (3.28)[a]	846.40
LF EXP	.0016 (6.24)[a]	23.00	.0017 (3.64)[a]	24.69	.0016 (5.35)[a]	23.57
TRAIN	.0072 (4.09)[a]	4.12	.0112 (2.04)[a]	2.46	.0062 (3.03)[a]	5.05
TRAIN^2	-.00007 (3.54)[a]	158.5	-.00009 (2.17)[b]	74.60	-.00007 (2.66)[a]	198.7
SOUTH	-.2478 (13.84)[a]	.41	-.4232 (12.19)[a]	.66	-.1699 (8.23)[a]	.31
WEST	.0215 (.82)	.11	.0034 (.04)	.04	.0322 (1.13)	.13
HEALTH	-.0584 (2.30)[b]	.11	-.0429 (.75)	.08	-.0633 (2.29)[b]	.12
MIG^2	.00004 (1.63)	48.04	.00005 (.86)	62.72	.00003 (.98)	41.87
MARRY	.1435 (10.15)[a]	.48	.1028 (3.10)[a]	.35	.1472 (10.06)[a]	.54
NO. JOBS	-.0035 (.39)	.67	-.0138 (.89)	.77	.0010 (.09)	.62
GOVT	-.0751 (3.08)[a]	.12	-.0207 (.46)	.14	-.1074 (3.73)[a]	.12
CONSTR	.1669 (6.53)[a]	.11	.1000 (4.03)[a]	.12	.1717 (5.73)[a]	.10
RACE	-.0572 (3.01)[a]	.30				
R^2	.40		.38		.36	
SE	.33 (n=1820)		.35 (n=538)		.32 (n=1282)	

[a]Significant at 1% level.

[b]Significant at 5% level.

TABLE 4

MARGINAL VALUE OF ONE YEAR OF ALTERNATIVE HUMAN INVESTMENTS

	Males, 14-24		Males, 45-59	
	White	Black	White	Black
SCHOOL	.059	.043	.060	.024
TRAINING	.074	.133	.051	.086
SENIORITY	.091	.050	.014	.011
OTHER IF EXPER	.019	.020	n.s[a]	n.s[a]

[a]n.s. = not significant.

The proportional wage differential associated with one additional year of alternative human investments to blacks and whites in each age cohort is reported in Table 4.[5] Within each cohort the black-white pattern of returns is the same: Whites receive a proportionately greater return for schooling and seniority with an employer; blacks receive proportionately greater returns for training investments. But in the younger cohort, both races report returns to post-school investments that are generally superior to the return to schooling. Both training and seniority offer larger returns to whites, and while a black might be indifferent between an additional year of schooling or experience with a single firm, the return to training is clearly preferable to the other options. For the older cohort the differences are smaller, with schooling yielding the largest proportionate wage differential for whites.[6] The relatively high (but transitory) returns to post-school experience at an age when there is a shortage of training and seniority, is one source of relatively early school departures. Once out of school, the data confirm a definite hierarchy in the quality of experience, with formal training programs preferable to firm seniority which yields higher monetary returns than work experience with previous employers. Indeed, additional schooling is preferable to the general labor force experience.

Clearly the most striking result is the paradox of relatively high returns but relatively low investment in training for blacks. To some extent the investment differences reflect employer decisions on the allocation of company training which could be compensated for by public manpower policies or reversed via the widespread enforcement of anti-discrimination measures such as Title VII of the Civil Rights Act. Nevertheless,

the equalization of training investments will have a relatively small impact on racial differences in economic status, as the subsequent analysis will indicate.

Reviewing results for other variables, we find a substantial southern differential, particularly for blacks. For both races, however, the southern differential is proportionately greater for the younger cohort. For example, the hourly wage rate of blacks in the older cohort is one-third lower in the South than in the Northeast and North Central (reference) regions, while for younger blacks the differential is 42 percent. The common competitive explanation that equilibrium regional money wage differentials should reflect regional cost-of-living differentials is not sufficient to explain two puzzles--the differential impact on white and black wage rates, and the relatively large impact on wage rates in the younger cohort. The most common explanation of the former puzzle is the existence of relatively greater discrimination against blacks in the South, although to hold in general equilibrium the explanation requires a greater similarity of discriminatory tastes across employers in southern labor markets than elsewhere.[7]

Interestingly, of those in both cohorts reporting that health inhibits the kind of work they can perform, only whites suffer a significant earnings loss. It is possible that a health impairment in whites yields lower wages by retarding occupational advancement or requiring movement to a lower wage occupation. To the extent that blacks already experience occupational segregation, given their human capital endowment, a health impairment might have little marginal impact on occupational position and wages. We expected the migration variable for the older cohort (length of time in current residence) to be positively related to the log of the wage rate on the hypothesis that wage information grows with experience in a labor market. However,

the present result is more consistent with the findings of relocation studies of workers in this age group than with search-theoretic notions that "tourists pay dear." Although the effect is quite small (one tenth of one percent of the hourly wage per year), there is a tendency for wages to fall with length of residence. The results suggest that the variable instead reflects the influence of nonpecuniary returns to location. In the regressions for younger males, the migration variable is also insignificant.

One of the more interesting results in this study is the magnitude of the influence of marital status on the wage rate received by a male. Even with effects associated with marriage already specified in the equations (experience, employment stability, etc.) married whites and blacks in the older cohort earn 23 percent and 14 percent more, respectively, than unmarried men of otherwise similar characteristics. For the younger cohorts the wage differential associates with marriage is 19 percent and 11 percent. Although there is some tendency to rationalize a positive market return to marriage as the result of some employer personnel policies in which marriage may be used as a credential, this type of nepotism argument encounters general equilibrium problems which are familiar to students of discrimination: If there are no differences in the ability of men who differ by marital status, employers practicing nepotism would find themselves at a competitive disadvantage with employers specializing in the employment of single males. For males, marital status may act as a sorting process which can be used to identify costly characteristics (e.g. turnover and absenteeism).

The results for the influence of the number of employers in the past year are of interest because they seem to contradict recent dual labor market formulations--at least as they might apply to the older male group. Recent job changing is associated with higher wage rates and the magnitude of this effect is about twice as strong for blacks, who gain about eight percent for each employer change in the past year! Moreover, for this cohort, the racial difference in employment instability, as measured by employer change, is negligible, with the mean number of employers in 1965 being 1.17 for whites and 1.18 for blacks. For younger males, however, the relationship between job changing and the wage rate is not significant, a finding which is consistent with the dual labor market view that turnover in secondary markets does not yield market wage advancement, or alternatively with the view suggested by findings of several local labor market studies (e.g., A. Rees) that search decisions at the blue collar level are motivated by differentials in nonpecuniary working conditions more than wage differentials. Blacks do record a somewhat higher mean number of job changes, but this reflects a higher number of layoffs rather than voluntary quits.[8]

The effect of being in public employment worked differently for the races in 1966, depressing the wages of whites in both cohorts below wages earned in the private sector by individuals with similar attributes, and raising the wages of blacks in the older cohort only above what they would be paid in private employment. The findings for the older cohort in particular are consistent with the view that market discrimination is greater in the private economy. Given the magnitude of the discrimination coefficient (16 percent in regression on both races) it was possible for blacks to earn

more where discrimination was less while whites earned less (possibly trading wages for job security). The construction variable, which was included to control for the effect of industry before estimating the relation between wages and the number of jobs held in the past year, indicates that both races earn about 25 percent more per hour in construction, ceteris paribus. Moreover, a relatively large proportion of the black population is in the industry.

The Influence of Occupation

The specifications discussed above presume a long-run equilibrium in which occupational wage differentials reflect the levels and returns to investments in schooling, training, and experience. There may, however, be additional occupational wage differentiation to the extent, for example, that some productive attributes are not specified in the equation, that there are important nonpecuniary differentials among occupations, or labor market segmentation is sufficiently strong that rents are earned in some occupations. Indeed, one branch of the literature on racial discrimination emphasizes the importance of occupational segregation in generating racial earnings differentials (see B. Bergmann). One's view of the effectiveness of schooling and training investments in narrowing racial differences in economic status is conditioned in part by the extent to which these investments can be expected to erode occupational segregation as well as yield earnings gains within an occupation.

The measurements reported in Tables 2 and 3 obscure this issue by combining within-occupation and between-occupation returns. The issue can be clarified by adding occupational dummy variables to the model and reestimating the regression. A comparison of the new set of coefficients,

reflecting within-occupation returns to schooling, training, etc., with the original coefficients will provide an estimate of the proportionate wage differential due to occupational advancement. A similar comparison for race will indicate the extent to which occupational segregation generates racial wage differentials.[9]

A comparison of the coefficients in the two sets of regressions indicates that even this minimum estimate of the impact of occupation is substantial. For example, in the regressions on whites and blacks combined, the net racial wage differential (as measured by the race dummy) narrows from 16 percent to 9.6 percent for the older cohort and from 6 percent to 4 percent for younger cohort, indicating that 40 percent and 33 percent of the net racial hourly wage differential in the respective cohorts is due to the segregation of blacks into occupations in which races receive lower wages.[10]

These comparisons also elucidate the structure of discrimination in more detail. If the returns to schooling, training, etc. in the earlier regressions reflect in part occupational advancement associated with these investments, the returns should fall when occupation is specified. In fact, the returns to schooling, training, experience, and marriage for the older cohort do fall significantly with the specification of occupation, <u>but mainly for whites</u>. For blacks, investments in schooling, training, etc., were not sufficient to overcome the forces of occupational segregation, although they did yield some incremental earnings within occupational categories. For whites in this cohort 31 percent of the return to schooling and 44 percent of the return to training was due to advancement into higher wage occupational categories. In the younger cohort, occupational advancement was a negligible part of the returns for each race, as would be expected given the short length of experience.

It was expected that the inclusion of occupation would also reduce the southern wage differential. However, for blacks there was no change in the wage differential associated with southern residence. On the other hand, the size of the differential increased for whites, indicating that for given personal characteristics and investments, whites tend to be employed more frequently in higher paying occupations in the South than elsewhere.

The Sources of Racial Wage Differentials

These regressions are of interest mainly for what the wage structures they describe reveal about the sources of racial wage differentials. The net race differentials, as measured by the dummy variable for race in the equations on pooled data for both races, are 16 percent for the older cohort and 6 percent for the younger cohort, confirming the cross-section age profiles of racial wage and income differentials noted in other sources. Nevertheless, these measurements tell us little about the sources of racial wage differences and discrimination per se, in part because the dummy variable approach abstracts from differences in the wage structure faced by whites and blacks. A more revealing approach involves decomposing the gross mean racial wage differential, $\bar{W}_w - \bar{W}_b$, into two parts: (1) $\bar{W}_w - W_b^*$, the proportion attributable to racial differences in the mean value of specified characteristics, and (2) $W_b^* - \bar{W}_b$, the proportion attributable to the fact that whites and blacks receive different prices for given characteristics.

The crucial variables are defined:

$$\bar{W}_w = \alpha \bar{X}_w + \varepsilon$$

$$\bar{W}_b = \beta \bar{X}_b + \mu$$

$$W_b^* = \alpha \bar{X}_b + \eta$$

in which $\bar{X}_w$ and $\bar{X}_b$ are vectors of mean values of the independent variables, and α and β are vectors of associated regression coefficients for whites and blacks respectively. W_b^* is therefore the mean wage rate which blacks would earn if they were paid according to the white wage structure and is estimated by substituting the mean values of the explanatory variables for blacks into the white regression equation and computing the resulting log of the wage rate.

The decomposition analyses for each cohort appear in Tables 5 and 6. Column (1) of each table reports the contribution of each characteristic to the actual log of the black wage rate, and the summation yields $\bar{W}_b$. Column (2) contains a similar breakdown of $\bar{W}_w$. In column (3), W_b^* is generated as described above, and the remaining columns report the effects of different means and different prices for each variable.

For the older cohort, the gross racial wage differential amounts to 42 percent, of which just over two-thirds is due to racial differences in characteristics $(\bar{W}_w - W_b^*) / (\bar{W}_w - \bar{W}_b)$. Examining first the effects of different means reported in column (4) of Table 5, it is clear that the difference in mean years of schooling is the main influence widening the racial wage differential. The fact that blacks in this cohort are found relatively frequently in the South, and are less frequently married has a significant but secondary influence. The role of racial differences in

TABLE 5

DECOMPOSITION OF RACIAL WAGE DIFFERENCES

	(1) Black Regression, Black Means	(2) White Regression, White Means	(3) White Regression, Black Means	(4) Effect of Different Means (2) - (3)	(5) Effect of Different Prices (3) - (1)
CONSTANT	4.9029	4.7004	4.7004	0	-.2025
SCHOOL	.1694	.6234	.4272	.1962	.2578
FIRM EXP	.1872	.1643	.1522	.0121	-.0350
TRAIN	.0366	.0428	.0219	.0209	-.0147
$(TRAIN)^2$	-.0136	-.0130	-.0051	-.0079	.0085
SOUTH	-.1948	-.0268	-.0599	.0331	.1349
WEST	.0060	.0241	.0089	.0152	.0029
HEALTH	-.0039	-.0235	-.0211	-.0024	-.0172
MIG	-.0452	-.0335	-.0361	.0026	.0091
MARRY	.1105	.2117	.1864	.0253	.0759
NO.JOBS	.0976	.0380	.0384	-.0004	-.0592
GOVT	.0167	-.0093	-.0103	.0010	-.0270
CONSTRUCT	.0387	.0280	.0379	-.0099	-.0008
Σ	5.3081	5.7966	5.50	.2858	.1327

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TABLE 6

DECOMPOSITION OF RACIAL WAGE DIFFERENCES, YOUNG MALES

	(1) Black Regression, Black Means	(2) White Regression, White Means	(3) White Regression, Black Means	(4) Effect of Different Means (2) - (3)	(5) Effect of Different Prices (3) - (1)
CONSTANT	4.8626	4.5469	4.5469	0	-.3157
SCHOOL	.4496	.6062	.6154	.0808	.1658
FIRM EXP	.0614	.1569	.1112	.0457	.0498
FIRM EXP^2	-.0107	-.0423	-.0266	-.0157	-.0159
LF EXP	.0420	.0377	.0395	-.0018	-.0025
TRAIN	.0276	.0369	.0153	.0216	-.0123
TRAIN^2	-.0067	-.0136	-.0052	-.0084	.0015
SOUTH	-.2813	-.0527	-.1121	.0594	.1692
WEST	.0001	.0042	.0013	.0029	.0012
HEALTH	-.0034	-.0076	-.0051	-.0025	-.0017
MIG^2	.0031	.0013	.0019	-.0006	-.0012
MARRY	.0360	.1065	.0690	.0375	.0330
NO. JOBS	-.0106	.0006	.0008	-.0002	.0114
GOVT	-.0029	-.0129	-.0150	.0021	-.0121
CONSTR	.0229	.0171	.0206	-.0035	-.0023
Σ	5.1897	5.4752	5.2579	.2173	.0682

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post-school experience--the fact that blacks have less training and seniority--is even less influential. Moving to the effect of different prices summarized in Column (5), differences in the return to schooling, southern location, and marriage are the main factors widening the racial wage differential. Indeed, although price differences are not the major source of overall racial wage differentials, they play the predominant role for these three variables.

However, a number of features of the wage structure tend to narrow racial wage differences. Foremost among these is the fact that each previous job is worth more to blacks in this age cohort than whites, a result which does not coincide well with dual labor market visions of racial wage discrimination, although it does suggest that blacks may search more effectively or face a wider wage dispersion. The returns to firm experience (seniority) and training are also greater for blacks, although whites in this sample report more of both types of human capital. Finally, as indicated earlier, the effect of government employment is to narrow the wage differences.

For the younger cohort the gross racial wage differential amounts to 28.5%, of which about three-quarters is due to the effects of different means and one-quarter reflects different prices. The effect of racial differences in schooling, firm experience, southern location, and marriage, according to the analysis in Column (4) of Table 6. With the exception of firm experience, which plays a much greater role in the racial wage differences of the young, these are the same factors which were predominantly responsible for the much larger racial wage gap in the older cohort. A similar result is found in Column (5). Racial differences in the prices

paid for characteristics are again greatest for schooling, southern residence, firm experience and marriage where the endowment differences are largest.

Conclusion

In the area of racial discrimination, post-war policy efforts have followed two complementary strategies. A series of manpower programs designed to advance the skill, experience and job information of the disadvantaged has grown simultaneously with the development of a nationwide fair employment practices policy embodied in Title VIII of the Civil Rights Act of 1964. Yet both of these approaches have developed in something of a vacuum of knowledge of the variety of forces generating aggregate measurements of discrimination.

The present paper seeks to estimate the value of alternative forms of post-school experience for whites and blacks and to isolate important differences in the wage structure for each race which are the source of net racial wage differentials. The analysis indicates that the single most important source of racial hourly wage rate differentials is, as emphasized by earlier investigators, the lower level of and return to black schooling investments. The difference in returns among the older cohort is partially attributable to the fact that only whites experience occupational advancement as a part of the return to their investments.

Among alternative post-school activities, it is clear that formal training programs are not the only source of productive experience, for younger workers in particular obtain substantial independent returns to firm seniority. Nevertheless, the wage differentials associated with formal training are usually largest of the post-school alternatives, and are relatively

large for blacks, although paradoxically the level of investment is relatively low. This paradox is somewhat resolved for the older cohort by the fact that blacks seem particularly deficient in the training controlled by firms. However, the analysis does not indicate that compensatory post-school investments are the main road to racial equality. Although the effect of post-school investments is usually to narrow racial wage differentials, differences in the level and return to these investments were a relatively minor source of the differential in comparison to schooling, southern residence, and marriage. Moreover, the differences in return to these variables were the predominant determinants of the differential for both the younger and older labor force cohorts.

At the same time, the analysis did not support the view that race differentials are largely the result of the restriction of blacks to low-wage, high turnover markets. The turnover behavior alleged to be an important characteristic of secondary labor markets in the recent segmented labor market literature is not a consequential source of racial wage differences for either cohort, although the returns to job changing are nonexistent in the younger cohort. On the other hand, these returns are positive and tend to narrow racial wage differentials for the older cohort. These findings can not of course, be viewed as a definitive test of recent segmentation hypotheses, but they do suggest that any labor market segments which may exist within an age group are not defined by differential turnover flows.

FOOTNOTES

*Comments by participants in the Labor Workshops at the University of Chicago and University of California at Berkeley were helpful in preparing the final draft of this paper. This paper was prepared under Grant No. 91-17-72-32 from the Manpower Administration, U. S. Department of Labor, but points of view which are expressed do not necessarily represent the official position or policy of the Department of Labor.

[1]Increasingly, evidence in studies such as Welch [1971] or Freeman [1973] indicates that the experience-earnings profiles describe narrowing racial differences for successive labor force cohorts rather than life-cycle phenomena experienced by each cohort.

[2]The more vague potential experience specification pioneered by Jacob Mincer would not be particularly fruitful in the empirical analysis, because the cohorts in the National Longitudinal Surveys capture only slices of the total age or experience profile.

[3]This unexpected finding could reflect diminishing returns to training or simply the composition of training itself. For example, the profile would be observed if those with the largest amounts of total training have relatively large amounts of training on which the market places a low valuation. Armed forces training, which cannot always be reduced indefinitely by individual choice, provides an example of the latter. One method of testing the competing explanations of the total training profile is to examine the relative performance of linear and quadratic specifications of variables representing the duration of several types (sources) of training. If

diminishing returns is important within categories of training, the quadratic specification should be stronger. In all cases, the linear specification was preferable, suggesting that the composition of total training accounts for the parabolic profile.

[4]The results of similar regressions with training disaggregated by source are not reported, but are available from the author.

[5]The data in Table 4 and the regression coefficients on which they are based should not be interpreted as rates of return to the investments, for they are not estimated from data for a full life span.

[6]Thurow reported a similar reversal in a differently formulated study of 1960 Census data.

[7]A related explanation is that the human investment variables entered in the equation do not fully capture the market productivity or criteria by which wages are determined for an individual. If there is additional wage variation associated with one's occupation, then greater occupational segregation of blacks within the South would produce the observed result. This possibility is explored below.

[8]Differences in the wording of the survey questionnaire led respondents in the older cohort only to count their current employer in their replies, resulting in the higher means for NO. JOBS for older males.

[9]However, since the occupational dummy variables are for broad occupational categories (managers, clerical, etc.) the returns to occupational advancement will be understated. Indeed, the distinction between within-occuption and between-occupation returns will always be somewhat arbitrary.

[10]Because of the length of these regressions and their similarity in structure to those in Tables 2 and 3, the results are not reported here but available from the author on request.

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DISCRIMINATION THEO[RY], LABOR TURNOVER, AND RACIAL UNEMPLOY[MENT] DIFFERENTIALS

by

Robert J. Flanagan*

The recent literature on the economics of racial discrimination has concentrated on racial earnings differentials and their determinants. Yet one of the most commonly cited features of racial economic differences is the fact that the black unemployment rate is regularly twice as high as the white. Moreover, the stability of the aggregate unemployment differential, which reflects the general stability of the ratios for demographic components (Duane Leigh and V. Lane Rawlins), throughout a period of substantial institutional change intended to narrow racial differences in economic status raises questions concerning both the determinants of the unemployment differential and the efficacy of some of the remedial programs.

The fact that the stability in the unemployment ratio is observed in a period in which students of racial earnings differences find little evidence of a long-term decline in wage discrimination for males (despite a presumption that competitive forces should tend toward a reduction in discrimination) is surely not coincidental. (See, for example, Richard Freeman, Wayne Vroman.) Indeed this inference of complementarity between racial earnings and unemployment ratios is supported by studies reporting that the distribution of weeks of employment is a major determinant of the distribution of annual earnings.[1] In contrast to the causality implied in the earnings distribution models, however, this study investigates the feedback from wage differentials to unemployment experience.

A natural approach to establishing a link between racial wage and unemployment differentials is via discrimination theory. Yet the literature reveals little intersection between theoretical analysis of discrimination and empirical studies of racial unemployment differentials. The former rarely develop extensive implications for unemployment and the latter rarely attempt to relate their observations to alternative theories. One purpose of this paper is to review the apparent implications of the alternative theories of discrimination for unemployment and relate the findings to them.

The practice of discrimination by various agents and institutions in the market will impose higher unemployment rates on blacks to the extent that: (1) the tendency of discriminatory behavior to result in occupational segregation restricts blacks to occupations in which unemployment is relatively high for all races, and (2) blacks experience relatively higher unemployment rates within most occupations.

Among contemporary discrimination theories, the first of these possibilities is implicit in theoretical formulations of occupational segregation (see particularly Barbara Bergmann). Unfortunately, this approach yields few implications on the sources of variation in racial unemployment differentials. By itself, this theory does not explain why the unemployment rate is relatively high in some occupations. Moreover, if occupational segregation were the main source of racial unemployment differentials, the explanation of these differentials across labor markets would rest on differences in discriminatory "tastes" or correlates thereof, a question which has received very little attention despite its status as the foundation of contemporary extensions of economic theory into the explanation of discrimination.[2]

Nevertheless, the influence of occupational segregation is not the full explanation. Indeed, an analysis by Harry Gilman indicated that only about half

of the racial unemployment differential was attributable to racial differences in the occupational distribution of employment. The problem of within-occupation unemployment differentials leads to a consideration of the unemployment implications of the standard utility analysis of discrimination associated with important work by Arrow and Becker. The emphasis in these theories is on racial wage rate differentials as a source of compensation for prejudice. To the extent that employers are able to practice wage discrimination, the hire or layoff probabilities facing blacks should not differ.[3]

The third approach is suggested by recent versions of segmented market theory (e.g., Piore). These hypotheses postulate a market duality in which wages fail to compensate for pecuniary and nonpecuniary costs of employment. Jobs in the primary sector are characterized by high wages, generally agreeable working conditions, promotion opportunities, and job and worker stability, whereas jobs in a secondary sector are characterized by low wages, poor conditions and high job and worker turnover. Some expositions emphasize considerable movement between market work and nonmarket activity of varying degrees of legality. The role of labor turnover is therefore quite different than in recent formulations of labor market information theory (e.g., McCall). In the latter, turnover is followed by a period of generally "productive" unemployment in which the individual searches for a preferable wage rate or package of nonpecuniary benefits. In the market segmentation case, however, turnover is apparently more apt to be the result of job instability and less apt to be associated with the wage advance associated with search-motivated turnover.

In an important earlier investigation of this topic Gilman standardized for several presumed influences on male unemployment rates and

found that inequality in the occupational distributions between nonwhite and white male workers accounts for less than half of the difference in their unemployment rates. Moreover, a regression analysis of the interoccupational dispersion of unemployment rates indicated that, after controlling for the influence of education, age, per cent wage and salary employees, and the "expected" unemployment rate given the industrial distribution of employment in the occupation, blacks have a significantly higher unemployment rate in more skilled occupations only. Since racial earnings ratios decline at higher skill levels, this finding from the occupational data yields the interesting implication of a positive interoccupational correlation between racial unemployment differentials and presumed racial discrimination.[4]

However, the analysis also raises several puzzles concerning the links between discrimination and unemployment. These include Gilman's finding that the proportion of the racial unemployment differential explained by occupational standardization fell from 1940 to 1950, and the finding that the unemployment differential is relatively low in the South where racial wage discrimination is relatively high. The interregional and time series evidence of a negative relation between racial wage and unemployment differentials clearly conflicts with the interoccupational evidence cited above and requires an explanation.[5]

Gilman's explanation of these patterns rests on a "wage rigidity hypothesis." Following the utility analysis of discrimination, racial unemployment rate differences should be relatively low where there are a few institutional constraints on the efforts of employers to seek compensation for their prejudice by paying blacks wage rates lower than the marginal product of labor, and Gilman argues that the constraints imposed by unions and minimum wage laws

are weakest in the South. This explanation raises several problems, however. Some of the evidence in the Gilman study is not congenial to the wage rigidity argument.[6] But of potentially greater importance is the fact that the argument is limited to unemployment resulting from employer decisions. As demonstrated below, this is a relatively small proportion of unemployment and of unemployment differentials. Indeed, I shall indicate below that explanations based solely on the utility analysis approach reflect a misunderstanding of the nature of racial unemployment differentials and by ignoring the role of supply behavior overlook empirically important mechanisms by which the practice of wage discrimination (and occupational segregation) can increase racial unemployment differentials.

In Section I below some recent developments in the decomposition and analysis of unemployment are reviewed. In Section II a model of turnover and unemployment is developed, incorporating measures of discrimination. The estimation problems presented by this model are discussed in Section III, and empirical results are presented in Section IV.

I. Recent Developments

The foundation of the subsequent analysis rests on two recent findings, which received insufficient emphasis in older unemployment studies generally, and studies of racial unemployment differentials in particular.

First, when the unemployment rate is disaggregated by source, it is apparent that the majority of unemployment is initiated by the choices of individuals (to quit a job or enter the labor force) rather than the decisions of firms (to lay off workers), suggesting that earlier demand-oriented analyses

of cross-section and time-series unemployment differentials were too restrictive. [See, for example, R. Hall (1972) and G. Perry (1972), M. Feldstein.]

Second, modern unemployment analysis emphasizes the importance of distinguishing between the frequency and duration of unemployment, and, indeed, several important unemployment differentials, including the race differential, largely reflect differences in the flows of new unemployment rather than the relative difficulty of finding a job. In fact, the correlation between the unemployment rate and the average duration of unemployment across sectors is weak and even negative.[7] Instead, differences in the weekly flow or incidence of new unemployment accounted for much of the unemployment rate differential. Note that in a steady state, the total unemployment rate for a sector, U_i, can be defined

$$(1) \qquad U_i = (I_i)(D_i)$$

in which I_i is the flow of new unemployed as a per cent of the labor force and D_i is the average duration of unemployment in the sector. The flow of new unemployment clearly depends on the size of the labor turnover flows which can result in unemployment and the proportion of each turnover source which incurs unemployment.

$$(2) \qquad I = \alpha q + \beta l + \gamma e.$$

In equation (2), q is the quit rate, l the layoff rate, e the gross labor force entry rate, and α, β, and γ represent the proportion of each turnover flow incurring unemployment. It is clear from these definitions that if differences in U are mainly defined by differences in I, the main problem in high unemployment sectors is less a difficulty of finding a job than high

turnover rates. Thus, the focus of the analysis of unemployment differentials is shifting increasingly to the determinants of turnover behavior and the probability that a quit, layoff, or labor force entrant actually incurs unemployment.

Background data on the distribution of unemployment by turnover flow are presented in Table 1. These data disaggregate the unemployed into three categories: those who lost their jobs (e.g., due to temporary or permanent plant closure or layoff), those who left (quit) their jobs, and those who are entering (or re-entering) the labor force after a period of labor force withdrawal. Data are presented from both the 1970 Current Population Survey, which permits disaggregation by race but not sex, and the 1970 Census Employment Survey (CES) which includes data by race and by sex.[8]

The data in Table 1 indicate that (a) unemployment resulting from job separations accounts for 50-60 per cent of total unemployment, and as expected is a more important source of unemployment for males than for females; (b) unemployment resulting from individual decisions is a more important component of total unemployment for both races in the low income Census Employment Survey sample; and (c) in both samples, unemployment resulting from individual supply decisions is relatively important for blacks. However, the sex-specific data in the CES sample indicates that this latter result reflects the pattern for females, since the distribution of unemployment among males is virtually the same for each race.

In the bottom panel of Table 1, the unemployment rates for blacks and whites are presented for 1970.[9] The black rate exceeds the white rate for all sources of job loss, although the differences for males are most striking for layoffs and labor force entry. Moreover, the pattern of unemployment rates

TABLE 1

Distribution of Unemployed by Turnover Flow, 1970

	Census Employment Survey				Current Population Survey	
	Male		Total		Total	
	Black	White	Black	White	Black	White
Lost job	48.6	47.3	37.5	40.8	40.9	45.0
Left job	13.4	14.9	14.1	15.2	12.3	13.7
LF entrant	38.7	37.8	48.8	44.0	46.8	41.3
	100.0	100.0	100.0	100.0	100.0	100.0

Unemployment Rates, 1970

	Census Employment Survey					Current Population Survey		
	Male			Total		Total		
	(1) Black	(2) White	(1)-(2)	Black	White	(1) Black	(2) White	(1)-(2)
Lost job	4.9	3.4	1.5	4.2	3.0	3.3	2.1	1.2
Left job	1.4	1.1	.3	1.6	1.1	1.0	.6	.4
LF entrant	3.9	2.7	1.2	5.4	3.2	3.9	1.8	2.1

Source: (CES) PHC(3)-1 Tables D and F, Manpower Report of the President, 1972.

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and differentials by race and turnover flow is quite similar in the two samples, although the absolute levels of the rates are higher in the low income sample. In addition to changing one's view of the nature of unemployment, the facts that (a) a high proportion of unemployment is associated with labor force entry and quits and (b) in most years, the black unemployment rate for each source of unemployment has been one-and-one-half to two times the white rate cast doubt on the proposition that the occupational and industrial distribution of employment account for most of the racial unemployment differences.

II. Framework of the Analysis

The data in the previous section indicate that explanations of racial unemployment differentials among males should focus on the determinants of the weekly flow of new unemployment. In this study, the problem is analyzed in two stages. In the first stage, models of quit and layoff decisions are developed building on theories of discrimination, human investment, and information search. (Limitations in the data have precluded a study of gross labor force entry.) In the second stage, the unemployment transition probabilities -- α and β -- are computed for each flow.

In the analysis of turnover, the first motivating factor governing the choice of variables is the extent to which turnover and unemployment differentials are the result of employer preferences for white employees. The approach to this issue suggested by discrimination theory is to test for a relation between wage discrimination and black turnover flows. As noted above, the utility analysis of discrimination implies that since employers can be bribed for their prejudice, blacks can reduce their susceptibility to

layoff by accepting a lower wage rate.

The role of employer prejudice in generating racial unemployment differentials is less clear when quit and labor force entry flows are relatively large for blacks, for these sources of unemployment reflect choices by the individual. However, the choice to quit is not independent of employer personnel policy and may in fact be influenced by the magnitude of wage discrimination and occupational segregation to which the individual has been exposed. In this sense, larger racial wage differentials -- whether generated by occupational segregation or "pure" (occupation-specific) wage discrimination -- will be associated with larger racial quit rate and unemployment incidence differentials. Thus, if an individual's actual wage is w_i and the mean market wage for individuals with similar human capital and work history characteristics is $\bar{w}$, we have

$$Q = f(w_i - \bar{w}, Z) \quad f_1 < 0 \tag{3}$$

$$L = g(w_i - \bar{w}, Y) \quad g_1 > 0 \tag{4}$$

where Z and Y are vectors of other determinants of the quit probability, Q, and the layoff probability, L.

The relationship between wage discrimination and the flow of black unemployment is therefore ambiguous, a priori. Ultimately the influence of wage discrimination on the black I_u will depend on the relative magnitude of f_1 and g_1 and the α and β coefficients, and it does not automatically follow that institutional constraints on wage discrimination necessarily raise black unemployment relative to white.

Nevertheless, the relationship between prejudice and unemployment will not be fully captured by a measure of wage discrimination. The enforcement

problems facing an employer pursuing a dual wage rate policy within job classifications are not trivial and are virtually insurmountable in the presence of a union. The wage discrimination approach also fails to take cognizance of the use of institutional rules and discriminatory employment credentials to reduce the job security and earnings opportunities of blacks, although the frequency of legal action protesting segregated seniority lines, exclusion of blacks from apprenticeship training programs, etc., indicates that these mechanisms are important in practice. The emphasis on the institutional mechanisms through which prejudice is exercized is found particularly in that part of the segmented market literature which emphasizes the jobs available to minorities. Alternatively, some argue that blacks may be assigned to less stable jobs because for "cultural" reasons they are inherently less stable employees. To the extent that these practices occur they will tend to raise racial turnover differentials and widen the unemployment rate differential.

A test of these hypotheses is provided by the relationship between quits or layoffs and the length of experience or service with a firm. That this relationship is generally negative (for reasons discussed below) is well documented in earlier studies of turnover. In the present context, however, the experience (EXP) variable defines a worker's seniority with the firm. If blacks are systematically assigned to segregated seniority lines or relatively unstable jobs, each additional month of service should offer blacks less protection against layoff than whites. If blacks are inherently less stable workers, the black quit probably should fall less rapidly than the white quit probability as experience increases.

In assigning workers to jobs and/or training programs, employers may use credentials or signals provided by an individual's educational or work

history. In particular, an employer may project an individual's probable job attachment on the basis of his past employment stability. In the turnover analysis it is possible to test whether this criterion is applied differently to whites and blacks by examining the influence of past job instability on the probability of layoff for each race. It is also possible to examine the rationality of the criterion itself by testing for a relation between past employment instability (JOBS held over the past year) and the probability of quitting one's current job. Dummy variables for the construction and government industries, which represent extremes on the job security spectrum are included to minimize the possibility that any observed relationship between past employment instability and current is merely an artifact of longstanding characteristics of industrial organization. Marital status, which is also alleged to be a common predictor-credential, is also included as an explanatory variable in the turnover regressions.

Finally, an attempt was made to resolve a longstanding puzzle growing out of regional variations in prejudice. Although discrimination appears to be relatively great in the South, racial unemployment differentials are relatively small. One possibility that has not been investigated is that racial turnover and hence unemployment incidence differentials are relatively small in the South. Thus, regional dummies are introduced into the turnover regressions.

Employer prejudice would presumably be reflected in the duration of job search as well as the turnover flows of blacks. Where employer prejudice exists in a labor market, the duration of unemployment should be relatively long for blacks, who will have to incur longer job search relative to whites in order to identify the (least prejudiced) employers offering the highest

wage rates for blacks. As noted above, however, the aggregate evidence indicates that the duration of unemployment for white and black males is quite similar. If this reflects roughly similar hire or rehire probabilities, then the observation is not consistent with the employer discrimination interpretation. If, however, the job search periods are similar for each race because blacks withdraw from the labor force when employment is not offered as readily as for whites, the observation of similar unemployment durations is consistent with employer discrimination. Perry recently examined the probabilities of labor force withdrawal for each race and found that the probabilities of dropping out were greater for blacks. [George Perry (1972)]

The choice of variables was also motivated by familiar propositions of human capital theory. A well-known implication of the theory of on-the-job training is that the quit and layoff propensities of specifically trained workers can be reduced if the employer and workers share both the costs and returns of training.[10] Explicit tests of this hypothesis have been impeded by the difficulty of isolating the specific and general components of training and, at times, a general absence of training data. [For one approach, see Donald Parsons]. In the data used in the present study, there is information on the duration of several types of training -- some of which are clearly general -- as well as seniority (experience) with the firm. But even within the formal company training category, the separation of specific and general training cannot be inferred directly, and training theory implies a relationship between training and job separations only if the proportion of training which is firm specific rises with the duration of training. In the empirical model, we utilize the fact that it is the excess of one's wage rate over that of a generally trained worker which dissuades quitting (and encourages layoffs within some ranges). Given a wage dispersion for individuals with a given

amount of training and otherwise similar, those with relatively high amounts of specific training should be in the upper tail of the dispersion.

Several empirical studies of search behavior have noted that the observed search methods of blue-collar workers in particular are contrary to the strategies predicted by models in which the dispersion of wages is the motivating factor [e.g., Albert Rees]. The use of informal sources of job information and the relatively high frequency of job changing in early years of labor market experience is often interpreted as a sign of strong interest in the nonpecuniary elements of a job -- about which adequate information is less likely to be conveyed by employment offices or other formal dealers in information. Thus, the longer a person has been with a firm, the lower is the likelihood of quitting due to dissatisfaction with nonpecuniary employment conditions. Tenure on the job is also usually associated with "learning by doing" and other forms of specific training which tend to make the workers more valuable to the present employer than alternatives. However, the importance of the specific training effect depends on the relative wage advantage accruing to specifically trained workers, and this is already specified elsewhere in the model (in the residual wage). Thus, length of service with the firm should be positively related to satisfaction with nonpecuniary conditions and negatively related to the quit rate.[11] As a further effort to specify nonpecuniary influences for which the wage does not fully compensate, we include a variable representing the workers' expressed attitude toward the job in some regressions.

To summarize, the model consists of three elements. First, a wage equation from which the wage effects on turnover behavior are derived as described in the subsequent section. This regression estimates the influence of

human investments, region, and past employment instability on the logarithm of the hourly wage rate. Second, a series of turnover equations in which quit, layoff, and labor force entry behavior is expressed as a function of seniority, an individual's position in the wage dispersion and other personal and job characteristics. The final elements are estimates of the α and β coefficients of equation (2) -- i.e., the probability that a quit, layoff, or labor force entrant will actually experience unemployment. Differences in the size of these coefficients, by race, for example, will reflect differences in labor market information (the necessity to indulge in unemployment search) and differences in nonmarket opportunities (the proclivity to leave the labor force) for quits and layoffs.

III. Data and Estimation Problems

These hypotheses are tested using data from the National Longitudinal Surveys, which include information on the recent work history of respondents in addition to data on personal characteristics and training. The increased detail on respondents' social and economic characteristics is purchased at the expense of comprehensive labor force coverage. This study utilizes the two male cohorts included in the surveys -- men, not enrolled in school, who were 14 to 24 and 45 to 59 years of age in 1966 when the Longitudinal Survey Program began.

One set of estimation problems surrounds the specification of a wage variable. Some earlier studies of turnover behavior have used wage levels as

explanatory variables, but this raises at least three problems: (1) Since the list of explanatory variables in the wage and turnover models overlap considerably, the inclusion of the wage rate in the turnover regressions introduces multicollinearity. (2) To the extent that the quit propensity of an individual is correlated with past employment instability, employers may pay individuals with high quit propensities less, introducing a simultaneous relationship between wages and quits. (3) In addition to the statistical problems, the wage level specification is a theoretically inappropriate description of the role of wages in an individual's choice of employer and an employer's choice of worker. The wage rate that an individual expects and receives are not independent of his education, training, and knowledge of labor market alternatives. Equations (3) and (4) above advance the hypotheses that an individual's decision to quit is an inverse function of his position in the wage dispersion of individuals with similar human capital investments and knowledge of the labor market, while an employer's decision to lay off will be a positive function of the individual's position in the wage dispersion.

A straightforward approach to problems (1) and (3) is to estimate a wage equation for each sample and use the residuals $(w_i - \bar{w})$ of the regression as explanatory variables in the turnover equations. To clarify the directions of causality, the longitudinal nature of the data are used to construct a recursive model of wage determination and turnover behavior. The wage determination equation for jobs held in one survey period includes independent variables for human capital investments, region, and the number of jobs held during the previous year. The residuals from this equation, which already incorporates any influence of previous job instability on the wage rate, are then used as an explanatory variable in a regression predicting the probability that an individual will quit the job during the subsequent year.

The residuals were obtained from the following regressions:[12]

Older Cohort:

$$\ln \text{Wage} = 4.734 + .055\ \text{SCHOOL} + .0122\ \text{EXP} + .0047\ \text{TRAIN} - .00003\ \text{TRAIN}^2 + .208\ \text{MARRY} + .2706\ \text{CONSTRUCT} + .042\ \text{JOBS} - .0898\ \text{HEALTH} + .001\ \text{MIG1} - .212\ \text{SOUTH} + .126\ \text{WEST} = .022\ \text{GOVT}$$

Younger Cohort

$$\ln \text{Wage} = 4.61 + .056\ \text{SCHOOL} + .0069\ \text{EXP} - .00004\ \text{EXP}^2 + .0018\ \text{OEXP} + .0076\ \text{TRAIN} - .00008\ \text{TRAIN}^2 + .18\ \text{MARRY} + .17\ \text{CONSTRUCT} - .0033\ \text{JOBS} - .0528\ \text{HEALTH} + .00004\ \text{MIG}^2 - .26\ \text{SOUTH} + .025\ \text{WEST} - .079\ \text{GOVT}$$

Further estimation problems arise from the fact that the labor turnover data are selective; although the total number of job changes within a year can be ascertained, the actual reason for a job separation is normally available for only one or two of the jobs held during a year. As a consequence, annual quit and layoff rates cannot be constructed for survey respondents, although the turnover equations can be estimated using binary dependent variables, for example, taking the value one if an individual quits (is laid off), the job held the previous year and zero otherwise. The probability of a quit or a layoff can therefore be estimated as a function of characteristics of the individual and of the job.

Once the use of a binary dependent variable is imposed by the nature of the data, well-known estimation problems are raised. In particular, the use of ordinary least squares violates the homoskedasticity assumption, yielding inefficient estimates, and, since the linear probability function is unbounded, the expectation of a quit or layoff could fall outside of the zero to one range for some values of the explanatory variables. Although the problem of heteroskedasticity can be handled by incorporating weighting

procedures into the ordinary least squares estimation, the fact that the probability of a quit or layoff is not confined to the unit interval tends to magnify the effect of specification error. To the extent that the characteristics of some individuals and jobs generate extreme values of the turnover probabilities, the use of a linear probability model will yield parameter estimates which are biased downward. The problem, then, is to incorporate a transformation into the estimation process which restricts the conditional probability to the unit interval while remaining consistent with the underlying economic model.

In the present case, the underlying model is based on the utility maximization of individuals and firms with random elements included due to the incomplete specification of tastes. As McFadden has demonstrated, the linear, probit, and logit probability models are all consistent with this model, and for binary choice problems, one can choose between the probit and logit models on the grounds of computational convenience. In the results discussed below, estimates from the linear probability and logit approaches are presented. In the logit model, the dependent variable becomes the log of the odds that a worker will quit or be laid off and the regression coefficients express the effect of a one unit change in an explanatory variable on the log of the oddes of a quit or layoff occurring.

IV. Empirical Results

Turnover Behavior

In the empirical work on labor turnover, we relate the probability that an individual quit or was laid off the job he held in 1966 (older cohort) or

1967 (younger cohort) to characteristics of the individual and the job. The analysis is restricted to individuals who were not enrolled in school and not self-employed. Unexpectedly, the data indicate that the racial differences in gross quit and layoff rates are smaller than would be the case if differences in turnover experience were the sole determinant of racial differences in I_u (and therefore imply that racial differences in the α and β coefficients of equation (2) largely account for the relatively high flow of unemployment among blacks). The data in Table 2 show the proportion of black and white males in the two sample cohorts who quit or were laid off from a previous job. For the older cohort, the data refer to the job held one year earlier (in late 1966); for the younger cohort the data refer to the proportions separated over a two-year period from the jobs held in late 1967.[13]

TABLE 2

Proportion Separated from Previous Job

		Quit	Layoff
Older	White	.066	.053
	Black	.064	.056
Younger	White	.206	.041
	Black	.209	.074

In the relatively tight labor markets of the period, the per cent exposed to layoff was lower than the quit percentages. Moreover, the age pattern of the quit rates and the finding that the gross layoff rates are relatively high among older workers of both races correspond with the results of interindustry analyses of turnover behavior [e.g., D. Parsons]. But in contrast to the impression created by discussions which associate blacks with high turnover jobs and unstable job attachment, the racial turnover differences are

very small in each cohort. The similarity for youth seems particularly surprising in the light of allegations of a high turnover dual labor market that is supposed to apply to black youth in particular. To the extent that a dual labor market which causes relative disadvantage to black youth exists, high quit behavior does not appear to be a symptom of it. On the other hand, blacks in the younger cohort report a somewhat higher gross layoff rate.

To pursue the links between discrimination theory and racial unemployment patterns, multivariate analyses of the quit and layoff probabilities appear in Tables 3 and 4. In the linear probability regressions the dependent variable takes the value one if the individual was laid off (quit) the job held one year earlier (two years earlier for the younger cohort) and zero otherwise. The estimates are obtained by ordinary least squares.[14] In the logit regressions, the dependent variable is the log of the odds that a person was laid off (quit) the job held in the reference period, or, for layoff,

$$\log \frac{L_i}{1-L_i} = X\beta + \epsilon$$

in which L_i is the probability that an individual is laid off his previous job. The samples are restricted to nonagricultural government and wage and salary employees who are not enrolled in school. Turnover associated with the summer jobs of school-age youth is negligible, since the surveys are conducted in October or November.

Prior to estimating the reported regressions, a number of experiments with alternative variables yielded somewhat unexpected results. For example, regressions including dummy variables for the major occupations along with the variables reported in Tables 3 and 4 yielded no evidence of significant occupational differences in quit or layoff probabilities for either race in these

samples.[15] In the context of discrimination theories, this result indicates that occupational segregation does not widen racial unemployment differences by directly raising the turnover flows from which unemployment is generated. Nevertheless, there are indirect effects (1) via the fact that $w_i - \bar{w}$ is relatively low for the victims of occupational segregation and (2) if the and parameters vary by occupational level. The probably magnitude of the former influence is assessed below.

In related experiments, neither the total amount of training nor the duration of any type of training was significantly related to quit or layoff behavior for either race. This result seems consistent with human capital theory only on the strong hypothesis that all of the reported training is

TABLE 3

Labor Turnover Regressions - Older Males

Linear Probability Estimates
(t statistics in parentheses)

	Layoff Regressions			Quit Regressions		
	Total	White	Black	Total	White	Black
CONSTANT	.0468	.0055	.1184	.0884	.1270	.0098
FIRM EXP.	-.0022 (-5.81)	-.0018 (-4.19)	-.0033 (-4.27)	-.0033 (-7.82)	-.0037 (-7.53)	-.0021 (-2.67)
JOBS	.0500 (8.53)	.0710 (9.92)	.0136 (1.32)	.0453 (6.97)	.0267 (3.24)	.0787 (7.41)
GOVT.	-.0497 (-5.14)	-.0530 (-4.65)	-.0452 (-2.53)	-.0303 (-2.74)	-.0197 (-1.47)	-.0531 (-2.84)
CONSTR.	.1345 (11.55)	.1604 (11.43)	.0842 (4.04)			
SOUTH	-.0003 (-.03)	.0041 (.39)	-.0018 (-.11)	.0084 (.89)	.0053 (.43)	.0080 (.50)
WEST	.0091 (.79)	.0147 (1.21)	-.0193 (-.60)	-.0052 (-.40)	-.0107 (-.75)	.0186 (.55)
MARRY	-.0323 (-2.72)	-.0254 (-1.63)	-.0434 (-2.37)	-.0274 (-2.05)	-.0389 (-2.12)	-.0127 (-.66)
RESID.	.0112 (1.24)	.0159 (1.51)	.0038 (.21)	-.0303 (-2.98)	-.0327 (-2.66)	-.0253 (-1.37)
RACE	-.0039 (-.44)			-.0156 (-1.58)		
DISLIKE				.1504 (5.08)	.1548 (4.31)	.1412 (2.72)
R^2	.106	.140	.069	.057	.050	.094
SE	.214	.208	.223	.241	.243	.234
N	3273	2275	998	3273	2275	998

Logit Estimates
(assymptotic t statistics in parentheses)

CONSTANT	-1.707 (-4.23)	-2.15 (-6.236)	-3.429 (-13.99)	-2.03	-3.344
FIRM EXP	-.089 (-4.08)	-.092 (-4.264)	-.054 (-4.67)	-.082 (-7.07)	-.042 (-2.58)

Table 3 continued

	Total	White	Black	Total	White	Black
JOBS	.073 (.47)	-.0999 (-651)	.621 (6.07)		.165 (1.49)	.675 (5.11)
GOVT.	-1.666 (-2.28)	-1.739 (-2.38)	-1.785 (-3.45)		-.259 (-1.08)	-1.472 (-2.41)
CONSTR.	1.046 (3.29)	.974 (3.186)	1.777 (8.30)		.338 (1.36)	.740 (2.23)
DISLIKE					1.438 (3.80)	1.214 (2.07)
MARRY	-.641 (-2.06)					
RESID	-.166 (-.82)				-.544 (-2.81)	-.541 (-1.76)

TABLE 4

Labor Turnover Regressions - Younger Males

Linear Probability Estimates
(t statistics in parentheses)

	Layoff Regressions			Quit Regressions		
	Total	White	Black	Total	White	Black
NSTANT	.0297	.0526	.0097	.1891	.1858	.1642
P	-.0016 (-2.67	-.0021 (2.87)	-.0010 (.82)	-.0016 (-3.20)	-.0015 (-2.67)	-.0015 (-1.64)
P^2	.00001 (2.19)	.00002 (2.22)	.00001 (.88)			
BS	.0168 (3.00)	.0099 (1.53)	.0283 (2.55)	.0359 (3.67)	.0558 (3.76)	.0194 (1.16)
VT.	-.0038 (-.25)	-.0133 (.79)	.0414 (1.37)	-.0687 (-2.41)	-.0688 (-1.99)	-.0623 (-1.22)
NSTR.	.097 (5.94)	.0899 (5.04)	.1127 (3.23)			
UTH	.012 (1.04)	.0021 (.19)	.035 (1.40)	.0297 (1.44)	.0147 (.59)	.0603 (1.55)
ST	.044 (2.68)	.032 (1.99)	.125 (2.25)	-.0058 (-.19)	-.0233 (-.71)	.0931 (1.07)
RRY	.007 (.69)	-.0031 (.28)	.0299 (1.27)	.0477 (2.49)	.0547 (2.42)	.0302 (.83)
SID.	.018 (1.25)	.0298 (1.88)	.0063 (.21)	-.0826 (-3.13)	-.0664 (-2.04)	-.106 (-2.27)
CE	.0277 (2.36)			-.015 (-.71)		
	.05	.05	.05	.03	.03	.03
	.215	.194	.258	.400	.398	.404
	1900	1322	578	1900	1322	578

TABLE 4 (continued)

Logit Estimates
(assymptotic t statistics in parentheses)

	Layoff Regressions		Quit Regressions	
	White	Black	White	Black
STANT	-2.502 (-6.05)	-3.724 (-5.60)	-1.327 (-7.77)	-1.704 (-5.40)
	-.126 (-3.92)	-.066 (-1.91)	-.014 (-2.81)	-.012 (-1.37)
2	.0012 (3.55)	.0008 (2.30)		
S	-.019 (-.13)	.297 (1.78)	.193 (2.50)	.093 (.84)
T	-.129 (-.26)	.419 (.76)	-.569 (-2.22)	-.698 (-1.72)
STR.	1.334 (3.83)	1.332 (3.04)		
TH	.049 (.133)	.573 (1.06)	.098 (.59)	.590 (2.04)
T	.73 (1.80)	1.882 (2.26)	-.082 (-.35)	.604 (.95)
RY	.20 (.62)	.980 (2.41)	.314 (2.05)	.203 (.82)
ID	.69 (1.64)	.134 (.24)	-.458 (-2.04)	-.614 (-1.80)

general.[16] Moreover, the result implies that the normal range of manpower training programs fails to influence job separation rates and a fortiori, racial unemployment differentials.

A second link between prejudice and unemployment experience runs from the relative wage received by a person of given quality to job separation and exposure to unemployment. In the regression results, the role of the wage differential, $w_i - \bar{w}$ (RESID), which incorporates the effects of discrimination, nepotism, occupational segregation, specific training, and imperfect job information, is assymetrical. For blacks, accepting a wage or occupation below that dictated by experience and training does not afford protection against layoff. At the same time, however, the effect of wage discrimination and occupational segregation is clearly to raise the probability of black quits, and the magnitude of this effect is particularly large in the younger cohort, where a one per cent reduction in the wage relative to the average wage received by individuals with similar schooling, training, experience, and industry raises the probability that an individual will quit his job within the ensuing two years by 10 per cent.[17] The direction of the relation between the wage differential and quits is the same in the older cohort, but is measured less precisely among blacks.

Note that the influence of the wage differential is also quite strong for whites. On the one hand, this implies that any tendency of employers to follow a policy of nepotism -- a possibility suggested in theoretical models which portray employer discrimination as a redistribution of income from black to white employees -- will reduce the quit rate of whites by somewhat less than wage discrimination against blacks raises the quit rate.[18] The overall effect of the wage differential on racial turnover flows is

obscured by the similarity of the coefficients on the RESID variable $(w_i - \bar{w})$ for each race. The results indicate that $/ f_1 / > / g_1 /$, so that the effect of $(w_i - \bar{w}) < 0$ is to increase the total separations rate (quits plus layoffs). Clearly, if the distribution of $(w_i - \bar{w})$ is the same for blacks and whites, no racial difference in turnover would be implied. In fact, the mean value of $(w_i - \bar{w})$ is lower for blacks in both cohorts, so that practices by employers, unions, or placement agencies which result in occupational segregation or "pure" (occupation-specific) wage discrimination tend to widen racial turnover and unemployment differentials. Conversely, policies designed to minimize these practices should tend to narrow racial unemployment differentials.

A third issue in assessing the role of discrimination on turnover and unemployment is the relation between experience or seniority with the firm and quit or layoff probabilities. As argued earlier, a higher black layoff probability, given the seniority, may reflect the existence of segregated seniority lines or different attitudes toward nonpecuniary rewards. (In these regressions, the EXP variable is generally <u>not</u> interpreted as a proxy for specific training, given the presence of the wage residual which should capture those specific training effects which dissuade turnover.) A comparison of the results by race is not strongly favoriable to the hypothesis that blacks are systemtically assigned to less stable jobs. For older males, the probability of being laid off after T years with an employer

is lower for blacks than for whites, although blacks are somewhat more likely to quit than whites with the same amount of experience. However, in the younger male sample, the relation between length of service and the probability of layoff is not statistically significant for blacks, although the chance of layoff falls (at a diminishing rate) for whites. This combined with the significant dummy variable for race in the layoff equation of Table 4 indicate that younger black labor force participants are employed in relatively unstable jobs. Nevertheless, the magnitude of the coefficients indicates that the somewhat greater black susceptibility to layoff is not sufficient to explain fully the racial difference in the incidence of unemployment. The relation between length of service and the probability does not indicate racial differences in job attachment.

The turnover regressions also permit a test of some features of recent segmented labor market hypotheses as they apply to racial differences in labor market behavior for these cohorts. These hypotheses raise two questions which are pursued below: (1) whether there are significant turnover differences associated with race, *ceteris paribus*; (2) whether job changing is associated with increased earnings, as the optimal search literature predicts. In a segmented market the opportunity for advancing market earnings by changing jobs are presumably lower due to the existence of barriers to occupational mobility.

The results for the older male cohort are not congenial to the segmentation view. For example, in the regressions on the full sample, no racial difference in quit or layoff probabilities emerges. On the other hand, in the regressions for each race, the coefficients on the JOBS variable indicates that the quit probability is positively related to past employment instability and that for a given number of recent job changes, the probability of a quit is three times as great for blacks as whites. On the face of it, this seems consistent

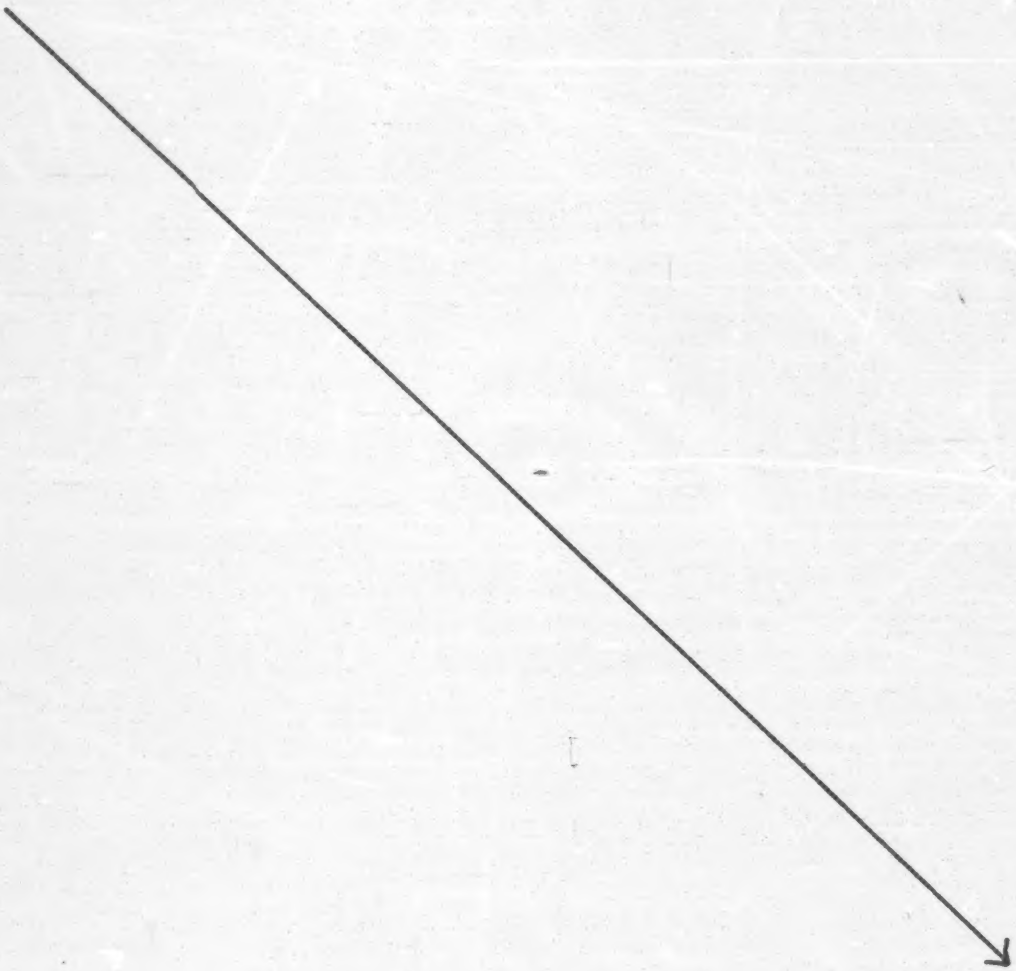
with the dual market model. However, thus far the story says nothing about the consequences of turnover for the individual. For this aspect of the analysis, which can be viewed as a test between the segmentation and optimal search views of turnover, the crucial question is the relation between job changing and the wage rate received. Wage regressions specified as in Section III were run separately on samples of blacks and whites to obtain estimates of $\partial w / \partial$ JOBS.[19] For the older cohort, each job change yields a wage rate increase which is higher for blacks than whites, a result which does not seem consistent with the view that blacks are restricted to secondary markets.

In the younger cohort, however, past job instability is a reliable predictor of future quitting for whites only. (For black youth the single most important determinant of quits is the difference between an individual's actual wage and the mean market wage). In contrast to the older cohort, however, job instability is not associated with wage advances (for either race) in the younger cohort. The lack of a relationship between job changing and the wage rate is more difficult to interpret. It is consistent with the segmented market view that turnover in secondary markets does not yield strong market rewards. However, the finding is also in accord with the conclusion of students of local labor markets that search activity among younger workers is largely motivated by non-pecuniary considerations.[20]

The conclusions derived for both samples from the linear probability results are supported by the results of the logit estimation reported in Tables 3 and 4. Indeed, the results obtained from both estimation procedures correspond closely in several important respects: None of the significant qualitative conclusions is altered by the use of the logit results and the relative black-white coefficient size is similar in the two sets of estimates.

Unemployment Probabilities

The next stage in the analysis is to determine the conditional probabilities of unemployment, given that one has quit, entered the labor force, or been laid off. This amounts to developing estimates of the , , and parameters of Equation (2). For the cohort of older males, it was possible to estimate the number of quits, layoffs, and labor force entries incurred by each individual over the period of a year. For the same period, data on the number of spells of unemployment was also available. The number of spells



of unemployment per year was regressed on the number of quits, layoffs, and labor force entires for the total sample, whites only and blacks only. The results of these three regressions are reported below:

FULL SAMPLE: Spells = .046 + .177 Quit + .485 Layoff + .034 Entry R^2 = .39
(.016) (.012) (.027)

WHITES: Spells = .037 + .137 Quit + .490 Layoff + .044 Entry R^2 = .40
(.018) (.014) (.032)
(7.51) (35.62) (1.06)

BLACKS: Spells = .066 + .274 Quit + .477 Layoff + .044 Entry R^2 = .38
(.033) (.022) (.052)

The results indicate that the probability of unemployment is twice as great for blacks who quit than for whites who quit. But even for blacks, in a year of relatively full employment, only one out of every four quits experiences some unemployment. The difference in parameter values for quits indicates that whites tend to have better information of alternative opportunities or are more prone to line up a new job before quitting. Alternatively, in this age group, it is possible that a higher per cent of whites retire early or otherwise withdraw from the labor force, so that quitting does not lead to exposure to unemployment. This latter possibility is plausible on at least two grounds. First, the income and asset level of the white population on average exceeds that of the black population so that earlier retirement is more feasible for whites. Second, results discussed in the next paragraph indicate that the information interpretation may be strained.

The estimates of the β coefficient are surprising because of their similarity. For blacks and whites alike, there is about a 50 per cent chance of incurring unemployment if laid off in a reasonably full employment period (1966-1967). This suggests that when separated from a job somewhat unex-

pectedly, the general labor market information of the blacks is no worse than whites--both seem equally likely to find a job rapidly. On the other hand, the fact that $\alpha < \beta$ for both races suggests that on-the-job search activity is more common than many contemporary search models presume. The racial difference for quits may reflect more pre-meditated search on the part of whites before quitting.

Finally, there appears to be no relationship between labor force entry and unemployment. This is somewhat unexpected, for unlike a person who looks for a new job while employed, a person who is not in the labor force will be classified as unemployed as soon as he indicates that he seeks work. Thus, the prior expectation was that the γ coefficient would be statistically significant and probably larger than the estimated α coefficient. The results for this age group may reflect the fact that what little labor force entry occurs in a year is usually men returning to work after a lengthy illness. In most cases, a job is waiting with their former employer, so there is no intervening period of unemployment. But are the higher average number of annual spells for blacks (.215 vs. .151 for whites) the result of greater turnover or of greater probabilities of unemployment, given turnover? It is clear from the pattern of regression coefficients alone that similar turnover flows would yield more frequent unemployment for blacks, largely due to the higher risk of unemployment for blacks who quit. It is also true, however, that blacks have higher layoff flows. An analysis of the influence of different turnover rates and different unemployment probabilities indicates that racial differences in the amount of turnover (mostly in layoffs) account for about thirty per cent of the racial gap in spells of unemployment for this age group, whereas racial differences in the probability of

incurring unemployment (virtually all on the quit flow) account for the remainder.

For the younger cohort, the nature of the data required a different approach to the estimation of α and β. The estimates, presented below in Table 5 are the ratio of unemployment spells to job changes for quits (α) and layoffs (β) respectively. These results differ from the findings for the older cohort in two respects. First, the probability of incurring unemployment

TABLE 5

Unemployment probabilities for Younger Males

	α	β
Black	.414	.487
White	.220	.264

is less closely related to the source of turnover. For both races the probability that a layoff will result in a spell of unemployment is only slightly higher than the analogous probability for a quit. One implication of this results is that racial unemployment differentials in this cohort are not generally related to racial differences in the ratio of quits to layoffs. The second important finding is the markedly higher conditional probability that blacks who are separated from their job will incur unemployment. For both quits and layoffs, young blacks are almost twice as likely to incur unemployment as young whites. Thus, for the younger cohort, virtually all of the racial differences in the incidence of unemployment is attributable to this factor, with less than ten per cent of the differential due to differences in turnover.

CONCLUSIONS

Racial unemployment differentials have rarely been analyzed in the context of discrimination theory. Where they have, the analysis and interpretation was hampered by application of the demand-oriented utility analysis of discrimination despite the obvious importance of supply factors in the data on unemployment. A recognition of the importance of quit behavior and movements between market and nonmarket activity in generating unemployment and unemployment differentials qualifies the traditional interpretation of the relation between wage discrimination and racial unemployment differentials. Whereas the utility analysis implies that racial differences in hiring and layoff probabilities can be eliminated by compensating employers for their prejudice, the predicted reduction of unemployment associated with these causes may be countered by increased unemployment associated with quits, the frequency of which will increase with wage discrimination.

The empirical analysis supports the view that racial unemployment differentials seem to be increased by the practice of wage discrimination. In the first instance, wage discrimination does not appear to provide protection against layoffs. On the other hand, wage discrimination stimulates quit behavior, particularly among youth. Although white and black quit probabilities display a similar sensitivity to the difference between their wage and the average market wage for their skills, the proportion of blacks with $w_i < \bar{w}$ is considerably greater so that the net effect is to widen the unemployment differential.

The empirical results were not consistent with the view that blacks are inherently less stable employees, although black quits would be lower in a market free of wage discrimination or occupational segregation. For the younger cohort there was some evidence that blacks were assigned to

relatively unstable jobs, although the difference was not sufficient to account fully for the racial unemployment differentials.

The most obvious extension of this approach which is required for a comprehensive analysis of the sources of racial unemployment differentials is an analysis of labor force entry and reentry decisions and the probability of becoming unemployed faced by black and white entrants. Although some of the concepts developed to analyze labor force participation rates will be germane for such an extension, the participation rates are a net concept and hence are not directly useful in the analysis of the relation between labor force entry behavior and unemployment.

Footnotes

*Assistant Professor of Labor Economics, Graduate School of Business, University of Chicago. This paper was prepared under Grant No. 91-17-72-32 from the Manpower Administration, U.S. Department of Labor, but points of view which are expressed do not necessarily represent the official position or policy of the Department of Labor.

1. For example, one recent study reported that the variance in weeks worked explained much more of the variance in annual earnings than did differences in the amount of schooling and concluded "...an understanding of the determinants of the distribution of work time and of the levels of rates of return is of primary importance for an understanding of the income distribution." (Barry Chiswick and Jacob Mincer, p. S57)

2. The few explorations in this area suggest that per capita income, the ethnic mix of the labor market, voting behavior and southern residence are important correlates of market prejudice. (See Barbara Bergmann and Jerolyn Lyle, Robert Flanagan, 1973b).

3. For example, "Discrimination could not be responsible for the [greater unemployment within each activity], however, if the wage rates of minority members were sufficiently lower than those of majority members in the same activity to incorporate fully the tastes for discrimination against minorities." (Gary Becker, p.

4. The results also indicate that the prevalence of blacks in lower-skilled occupations is not the reason for the relatively high unemployment rates observed in those occupations generally.

5. The cross-occupational and time series results can be reconciled by recalling that the World War II period provided the major period of relative occupational advance for black males during the twentieth century. Blacks moved into occupations in which Gilman's evidence indicates black unemployment rates are systematically higher than those experienced by whites with similar characteristics.

6. For example, Gilman's evidence showed that the net racial unemployment differential is greatest at higher skill levels, where the impact of

minimum wages and unions is relatively low. (For evidence on the relative wage impact of unions by occupation level, see F. Stafford) With respect to the regional differential, greater wage discrimination in the South implies blacks have relatively more to gain from minimum wage laws. Although the utility analysis argument suggests this should yield a relatively large unemployment differential, the data show a negligible Southern race differential at low skill levels. Gilman asserts that the coverage of the minimum wage law is "probably" less in the South, the industrial mix and income distribution of the South notwithstanding. Studies of the effect of changes in minimum wage legislation consistently show relatively high impact in the South.

7. For example, in 1970 the simple correlation between the unemployment rate and the average duration of unemployment was -.484 across major occupations and -.323 across major industries. Both coefficients fall well below the five percent significance level. In the same year, there was no racial difference in the mean duration of unemployment (9.5 weeks) for males. Data for computations are from Tables A-9, A-10, A-14 and A-15 of P. Flaim and P. Schwab.

8. The Census Employment Survey was conducted in 60 urban and seven rural areas which, on the basis of 1960 Census data and more recent opinions of expert local observers, were believed to contain a large proportion of persons with low incomes. In each area, interviews were conducted with an average of 5,400 persons 16 years of age and over in 2,750 households. The analysis in Table 1 is of summary data for all the areas and is reported in the U.S. Bureau of Census.

9. The denominator, the civilian labor force, is the same for each

source of unemployment, so the three rates sum to the aggregate rate.

10. It does not appear, however, that once unemployed, the effect of specific training is to reduce unemployment duration. Indeed, since the specifically trained are paid more than general (market) wage rate, their initial acceptance wage will tend to be higher than the mean market wage for their general skills. Thus, they will be less likely to find an acceptable wage rate from the dispersion for generally trained people as rapidly as others, and search unemployment will be relatively long.

11. The length of service or experience is also correlated in some firms with coverage by nonvested pension plans which would tend to reduce the turnover of experienced workers. The variable also represents seniority which is an important method for allocating employment preference in many firms. In the turnover regression, the coefficients on the experience variable can therefore be used to assess the role of employer discrimination in racial unemployment differentials. Longer seniority or experience in a firm should be associated with lower layoff probabilities. Moreover, if blacks are placed on segregated seniority lines which offer less layoff protection, as institutional studies and a review of judicial and National Labor Relations Board discrimination cases suggests, the absolute value of the coefficient on experience should be smaller for blacks.

12. The dependent variable is the natural log of the hourly wage rate expressed in cents per hour. The independent variables are years of school completed (SCHOOL), years (months in younger cohort) of employed with current employer (EXP), age munus EXP minus school-leaving age (OEXP), total months of training (TRAIN), number of employers in past year (JOBS), years in current residence (MIGI), miles between 1966 and 1967 residence (MIG2)

and MARRY, HEALTH, SOUTH, WEST, CONSTRUCT AND GOVT -- a series of dummy variables taking the value one if the individual is respectively married with wife present, limited by health in the kind of work he can perform, residing in the South or West, or employed on construction or government. Residuals from the log wage equations were preferable to absolute wage residuals. For a discussion of the structure of wage discrimination based on these equations, see (Robert Flanagan, 1973a).

13. Since the reported reason for turnover was not cross-checked with the respondent's previous employer, the allocation of job separations between quits and layoffs may err, presumably in the direction of overstating quits and understating layoffs. The fact that the data will not reflect turnover related to seasonal factors (e.g., model changes) in which an individual was laid off and then returned to his former employer also results in an understatement of layoff experience. The racial dimension of this effect is not clear. Nevertheless, the extensive investigation of the characteristics of the current job, irrespective of employer change makes error in the total employer change rate unlikely.

14. The results of recent Monte Carlo experiments indicate that for samples in excess of one hundred observations there is negligible gain in efficiency from utilizing generalized least squares estimation. [See V. Kerry Smith and Charles J. Chicchetti]

15. As an indication of the fundamental importance of the variables in Tables 3 and 4 in determining turnover behavior which is at times attributed to "occupation," compare the reported result with the following statement based on a two-way tabular analysis of the same data: "There were several substantial variations in the rate of job changing among the major occupational groups.

Among both white and black men about a fifth of nonfarm laborers had changed employers, a rate practically twice as great as the average rate for all workers. This higher rate, it is to be noted, resulted almost equally from higher rates of voluntary and higher rates of involuntary movement." (Herbert Parnes et al., p. 19)

16. When only the duration of training actually used on the job is included in the regression, the statistical precision of the results declines even further.

17. This result also suggests that individuals' expectations of the mean wage available for their education, training, and experience is fairly accurate. There is no apparent systematic tendency toward optimism or pessimism.

18. Indeed, since blacks usually constitute a minority, a full redistribution will require a large discrimination coefficient relative to the nepotism coefficient and will result in a net increase in quits.

19. These regressions and their implications are discussed in detail in Robert Flanagan (1973b).

20. Thus, for example, the search process involves personally sampling several jobs rather than using an employment service or other dealer in information, which would be rational if the motivation was primarily pecuniary. See Rees.

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Segmented Market Theories and Racial Discrimination

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Segmented Market Theories and Racial Discrimination

THERE HAS ALWAYS BEEN some tension between economists' analysis of the earnings distribution generally and the analysis of the lower portion of that distribution. Explanations based on smoothly functioning competitive markets have been the historically important approach to the former and receive fairly impressive contemporary empirical support in the analysis of white earnings distributions in the United States. Explanations based on market segmentation have been a more frequent approach to the latter, particularly in recent years as marked racial differences in income have been documented. The purpose of this paper is to assess the usefulness of alternative versions of market segmentation theory as explanations of the main features of racial differences in economic status.[1]

The crux of any theory of labor market segmentation is the mechanism or institutional barriers which truncate competition by precluding mobility between the various labor market segments. In discussions of race, some segmentation theories emphasize inequality in educational opportunity and are thus similar to discussions of noncompeting groups associated with Mill and Cairnes. Others, of more recent vintage, postulate the existence of a dual labor market for blacks and whites which is a consequence of housing segregation, ghettoization, and employer discrimination. Each of the segmentation theories can be challenged on logical grounds, and there is surprisingly little systematic evidence on the actual operation of the institutional barriers that form the crux of these theories.

In developing this analysis, recent econometric studies based on competitive labor market theory are first reviewed to illustrate both their usefulness in explaining portions of the observed variation in income and their apparent shortcomings. Next, the older segmentation theories are briefly reviewed

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and evaluated in terms of contemporary evidence for racial minorities and the population at large. Finally, the validity of barriers associated with the newer dual labor market view is similarly assessed. Contrary to some of the predictions of this hypothesis, the evidence indicates that the returns to schooling and experience for blacks do not appear to be depressed by housing segregation. Instead, the important labor market barrier appears to be access to on-the-job training. The implications of this deduction are discussed in the conclusion.

Competitive Analyses of Earnings Distributions

In recent empirical research, two main approaches have been used to evaluate competitive labor market theory. In the first, an equilibrium wage structure is postulated, and data are analyzed to determine if wages exhibit the predicted theoretical relationship to the explanatory variables. Alternatively, a model of disequilibrium behavior that corresponds with competitive assumptions is tested. Disequilibrium models postulate a wage-employment adjustment process which can then be tested with time series data. While both approaches have been used in the analysis of U.S. data, the former is more common, and, as a point of departure, some of the findings from these studies are reviewed below.

A competitive model of individual wage differences. The theory of wage differences among individuals is grounded on the demand side in marginal productivity theory and on the supply side in human investment theory, yielding the result that an individual's wage should vary with the human capital investments made in him. In contemporary models, an individual's earnings are postulated to depend on the sum of his human capital investments, which include schooling, on-the-job training, etc. Post-schooling investments are difficult to specify explicitly in the labor force data normally available but may be presumed to be concentrated toward the earlier part of one's working life, when the number of future periods in which a return on the investment can be collected is greatest. The fact that on-the-job training and other human capital investments decrease with age and experience yields the characteristic curvature of age-earnings or experience-earnings profiles. Therefore, in studying the distribution of individual earnings, it is crucial to account for each individual's position in his life cycle. These considerations have led to the development of the following model for the study of earnings distributions:

$$(1)\quad \log gY_i = \log gY_0 + r_s S + rkj - \frac{rk}{2T} j^2$$

e log gY_i is the logarithm of the income of individual i; r_s is the rate urn to schooling, S; r is the rate of return on post-school human capital tments; k is the fraction of post-school experience devoted to human al formation;[2] j is the potential number of years of post-school work ience (and human investment); and T is the span of the investment d. This model was pioneered by Jacob Mincer in a study of individual ngs differences among a large national sample of white males.[3] In er's work as much as *two-thirds* of the variance of the logarithm of ngs is explained by this model with the addition of a weeks worked ble.

is model of individual wage differences bears a strong resemblance to n Smith's famous explanation of occupational wage variation, since f the main costs of entering an occupation is the investment in training ducation. It is, therefore, of interest to examine the power of human tment models in explaining the occupational wage structure. This is cularly relevant in a discussion of labor market segmentation, since ccupational wage structure should be weakly related to human capital tments if, for a given level of education, there are barriers to moving among occupations. Using data from the 1960 Census, a recent study ahm applied a model similar to equation (1) to 411 occupations. The ssion results indicated that years of schooling and experience explained 68 per cent of the interoccupational variation of the logarithm of al income.[4] When average annual weeks worked in each occupation dded as an independent variable, the regression explained 75 per cent e occupational wage structure.[5]

hough these studies provide strong support for the aspects of competi- abor market theory that they test, they by no means imply that human tments are the only source of earnings differentials. Some 25 per cent e occupational wage structure remained unexplained in the Rahm , and a (naturally) larger proportion of the individual earnings distribu- vas not explained by variations in schooling and potential experience in

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practice, it is not possible to identify r and k separately in this model. For an extremely gh review of the theoretical and empirical issues leading to the development of the model, ob Mincer, "Schooling, Age and Earnings," in National Bureau of Economic Research, *Capital and Personal Income Distribution* (forthcoming).

cob Mincer, "The Distribution of Labor Incomes: A Survey with Special Reference to man Capital Approach," *Journal of Economic Literature*, VIII (March, 1970), 1–26.

arl M. Rahm, *Investment in Training and the U.S. Occupational Wage Structure in 1959* lished Ph.D. dissertation, Columbia University, 1971).

nteresting, the regression coefficient on the weeks worked variable was positive in regressions, indicating that workers are paid less in those occupations where employ- least certain, due to seasonal and cyclical forces. This observation conflicts with Smith's s, although it is consistent with the dual labor market hypothesis discussed below.

Mincer's study. Moreover, the samples from which these results are generated are often somewhat selective (e.g., Mincer's consists only of white males).

Noncompetitive earnings determinants. Subsequent studies have confirmed the importance of noncompetitive earnings determinants such as unionism and race. In particular, studies of wage determination ranging in aggregation from the firm to national averages persistently show the payment of lower wages to blacks (and women) when individual differences in human capital are held constant.[6] Moreover, studies of racial earnings differences indicate that the rate of return to schooling and achievement is generally lower and more unstable for blacks than for whites (at least until the mid-sixties).[7] In terms of lifetime earnings experience, the age-earnings profile for whites of a given educational level rises more or less continuously to middle age before declining, whereas the profile for blacks coincides with the white profile for the early years of labor market experience, but then flattens out.[8] There is no shortage of hypotheses advanced to explain this dramatic result.

The failure of black earnings to keep up with white earnings at later years of experience could result directly from the wage discrimination and occupational segregation documented in several studies. Occupational segregation, the tendency of blacks and women to be employed more frequently in low-wage occupations than would be expected on the basis of human capital investment, is no doubt partly achieved via discriminatory access to on-the-job training and segregated seniority lines, although some of the institutional arrangements which have been important historically will be increasingly difficult to maintain in the face of the Civil Rights Act of 1964. Another set of hypotheses suggests that unstable job habits among racial minorities result in their exclusion from training and promotion opportunities. Whatever the explanation, it is clear that the negligible returns to schooling and academic achievement interact with school enrollment decisions. Discrimi-

[6] See, for example, J. Gwartney, "Employment Discrimination, Productivity Factors, and Income Differentials Between Whites and Nonwhites," *American Economic Review*, LXI (June, 1970) 396–408; and David Taylor, "Discrimination and Occupational Wage Differences in the Market for Unskilled Labor," *Industrial and Labor Relations Review*, XXI (April, 1968), 375–390.

[7] Data collected in 1966 and later seem to indicate an encouraging reversal in the long-standing inverse relationship between the black-white income ratio and the level of educational attainment and imply that racial differences in the rate of return to schooling may have narrowed over the past decade. See Finis Welch, "Black-White Differences in Returns to Schooling," in O. Ashenfelter and A. Rees, *Discrimination in Labor Markets* (Princeton, N. J.: Princeton University Press, 1973).

[8] See, for example, Robert Hall, "Why Is the Unemployment Rate So High at Full Employment?", *Brookings Papers on Economic Activity*, 3, 1970.

nation in the labor market tends to feed back and lower the proportion of the black population seeking higher levels of schooling; and, once in school, the knowledge that achievement has little relationship to later market rewards removes the incentive for high performance.[9]

Evaluation. The empirical findings reviewed in this section demonstrate the impressive results yielded by human capital models developed over the past decade in the analysis of labor markets. However, racial differences in economic status imply imperfections in labor markets. Although some of the racial earnings differences reflect discrimination in the allocation of education and other forms of human capital, the fact that the *return* to education is lower for blacks indicates that some of the barriers are unique to the labor market.

In the face of these observations, racial discrimination has been subjected to economic analysis using two primary approaches. One approach examines the implications of introducing prejudice into the utility functions of employers, employees, and consumers.[10] A second approach has been to invoke some theory of noncompeting groups or labor market segmentation which ultimately rests on the existence of important institutional barriers to racial equality. Although the problems with the utility analysis approach have been detailed elsewhere,[11] segmented-market hypotheses have not been subjected to careful empirical scrutiny. In particular, there has been no systematic investigation of their applicability to racial discrimination. In the following sections, I briefly review these theories and confront them with modern evidence.

Labor Market Segmentation

The earliest hypotheses of noncompeting groups were something of a reaction to the classic discussion of occupational wage differentials by Adam Smith. The first major treatment of individuals at the lower bound of the earnings distribution was provided by John Stuart Mill who found Smith's analysis "tolerably successful," but felt that some qualifications were in order.[12] Dissatisfied with Smith's claim that wages varied inversely with

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[9] Randall D. Weiss, "The Effect of Education on the Earnings of Blacks and Whites," *Review of Economics and Statistics*, LII (May, 1970), 150–159.

[10] See Gary S. Becker, *Human Capital* (New York: Columbia University Press, 1964) and Kenneth Arrow, "Economic Theory and Racial Discrimination," Marshall Lectures, 1970, for important statements of a theory of discrimination which follows from recognizing the existence of "tastes" to discriminate by employers and employees.

[11] Arrow, *op. cit.*

[12] J. S. Mill, *Principles of Political Economy*, Vol. I (Toronto: University of Toronto Press, 1965).

the agreeableness of the occupation, Mill argued that the most disagreeable jobs in society were in fact the lowest paid because they were "performed by those who have no choice." [13] In Mill's time, "no choice" was a euphemism for negligible education and skill, and, to a large extent, the plight of the poorest classes was, as Mill recognized, attributable to the difficulties of privately financing the education of the poor in a period when widespread public education was in its infancy.[14] On the basis of these observations, Mill developed one of the clearer early statements of segmented labor market doctrine in the literature:

> . . . so strongly marked [is] the line of demarcation, between the different grades of labourers, as to be almost equivalent to an hereditary distinction of caste; each employment being chiefly recruited from the children of those already employed in it, or in employments of the same rank within social custom.[15]

Does occupational recruitment occur chiefly from within its own ranks in present times? Modern evidence on Mill's proposition is found in sociological studies of intergenerational mobility in which the father's occupation or occupational status is compared to his son's. On the basis of an analysis of a representative sample of males interviewed in 1962, Blau and Duncan concluded that "there is a large amount of upward mobility in the American occupational structure. Upward movements far exceed downward movements, whether raw numbers, percentages, or departures from standardized expectations are considered."[16] Blau and Duncan's data indicate substantial upward social mobility from low-status origins, and, further, other post-war studies show similar patterns in intergenerational mobility for earlier decades. For the population at large, parents are usually able to pass on at least their own socioeconomic position to their children.

Therefore, the data from the male population at large do not bear out

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[13] *Ibid.*, p. 464.

[14] Cairnes later offered a similar theory, arguing that considerable labor market competition existed within sets of occupations with similar education and training requirements, but competition was limited to layers of occupations requiring substantially different human capital investments. J. Cairnes, *Some Leading Principles of Political Economy, Newly Expounded* (London: Macmillan, 1874).

[15] Mill, *op. cit.*, p. 469. Mill was also an astute observer of sex differentials, noting that (1) these were small when men and women worked together in the same employment, and (2) given extensive occupational segregation of the sexes, the more important question was why wages in "female jobs" were below those in male jobs of comparable skill. On the latter point, Mill, anticipating contemporary students of sex discrimination by 120 years, argued that the effect of sex discrimination was to exclude women from many jobs, thus "overcrowding" them into a few occupations and forcing the wages in those occupations down below what individuals with similar human capital investments could hope to receive.

[16] Peter Blau and Otis D. Duncan, *The American Occupational Structure* (New York: Wiley, 1967), p. 77.

Mill's views on occupational recruitment. On the other hand, Mill, who emphasized barriers to education as the primary mechanism generating this result, presumably would not have been surprised at such a finding in an era of widespread public education. Nevertheless, the emphasis here is less on an underclass of poor than on the validity of a noncompeting group defined by race. How does Mill's contention apply to blacks? Using data from the Blau-Duncan survey, Duncan was able to construct condensed intergenerational mobility matrices for blacks and all others.[17] Even for blacks, there was no evidence to support Mill's claims. Instead, the data indicated that irrespective of the social origin of a black individual (i.e., occupation of his father), he was likely to end up working in a lower manual occupation (operative, service worker, laborer). No matter what the family's initial occupational position, the combined operation of the educational system and labor market tend to return sons to the lower-skilled jobs in society. This is probably the clearest illustration of a genuine vicious circle in economic status for blacks.

Capital market imperfections and discriminatory distribution of public expenditures. In the work of both Mill and Cairnes, noncompeting industrial groups result from a standard form of capital market imperfection—the difficulty of financing investment when collateral cannot be offered. But for the white population, the intergenerational mobility data support the view that these factors are no longer important forces. However, the answer is somewhat less certain for the black population, for "defective education" is already one obvious source of racial differences in economic status. The median years of schooling for whites exceeds that for blacks, and for each year of schooling blacks get less education, at least in the form of aptitudes captured in standard achievement tests. In many respects, this resembles the classical type of market segmentation. Indeed, where subpopulations are clearly identifiable by their race, the existence of public education is not sufficient to equalize access to educational opportunity, for public agencies can discriminate in the allocation of public expenditures.[18] In the case of educational inputs, this type of discrimination is particularly feasible when

[17] Otis D. Duncan, "Patterns of Occupational Mobility Among Negro Men," *Demography*, I (1968), 1–16.

[18] For evidence on the relationship between race and the allocation of educational expenditures in large American cities, see J. Owen, "The Distribution of Educational Expenditures in Large American Cities," *Journal of Human Resources*, VII (Winter, 1972), 26–38. See also the report by J. Coleman, C. Berry, and Z. Blum, *White and Black Careers During the First Ten Years of Work Experience: A Simultaneous Consideration of Occupational Status and Income Changes*, Report No. 123, Center for the Social Organization of Schools, Johns Hopkins University, December, 1971, which suggests that racial differences in school resources are smaller than commonly assumed.

there is extensive housing segregation by race, as there is in most major U.S. cities.[19] This classical source of segmentation is also possible when educational expenditures are financed by local property taxes, which are strongly correlated with the economic status of residents.

Nevertheless, the classical view of segmentation does seem inadequate as a full explanation of the plight of racial minorities today. First, the lower rate of return to the schooling of blacks is not fully attributable to differences in achievement per year of education, for blacks receive lower returns to schooling *and achievement*. Secondly, studies of the determinants of academic achievement indicate that (a) differences in the educational resources of white and black schools are not as large as formerly believed, and (b) the relationship between achievement scores and most measures of school resources is very weak.[20] Thus, inequalities in the distribution of school resources are apparently not a major source of lower black achievement per year of school. However, the distribution of resources does influence the number of years of schooling acquired and hence the lifetime income of an individual,[21] but this does not explain the rate of return per year of schooling. Finally, recent evidence indicates that the link between schooling and income is far stronger than the link between achievement and income.[22] Thus, the aspects of schooling which enhance market productivity are apparently not captured in standard achievement test scores used in discussions of the quality of education. These findings imply that more than capital market imperfections and the discriminatory distribution of public expenditures are at issue. Labor market barriers must exist and play a role in any contemporary market segmentation theory.

Can a market segmentation theory explain racial discrimination? If a contemporary theory of labor market segmentation were to be applied successfully to the analysis of the labor market experience of blacks in the United States, it would have to explain the following important features of racial discrimination: (1) the existence of a greater racial wage differential within occupations than can be justified by racial differences in human capital accumulation; (2) within educational groups, differences in age-

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[19] Alternatively, in cities in which the school system is generally of poor quality, parents tend to purchase more private education for their children. Relatively low family income will generally prevent blacks from exercising this option and will tend to develop noncompeting groups by a mechanism similar to Mill's.

[20] Coleman, *et al.*, *op. cit.*

[21] George Johnson and Frank Stafford, "Social Returns to the Quantity and Quality of Schooling," *Journal of Human Resources*, VIII (Spring, 1973), 139–155.

[22] Zvi Griliches and William Mason, "Education, Income and Ability," *Journal of Political Economy*, LXXX (June, 1972), S74–S103.

earnings profiles; (3) the existence of widespread occupational segregation of blacks beyond what would be expected from differential investments in education; (4) the existence of racial unemployment differentials which, moreover, are not basically attributable to differences in the average length of time it takes to find or accept a job.

In 1970, the average duration of unemployment for both white and black males was 9.5 weeks, although the black male unemployment rate (7.3 per cent) was almost twice as high as the white male rate (4.0 per cent).[23] Therefore, racial unemployment rate differentials must largely reflect a relatively high weekly incidence or flow of new unemployment among blacks.[24]

Since the incidence of unemployment (number of new unemployed workers per week as a per cent of the labor force), I_u, is defined as

$$(2) \quad I_u = \alpha q + \beta y + \gamma p$$

where q is the quit rate, y is the layoff rate, p is the rate of gross labor force entry, and α, β, and γ are parameters representing the propensity of each source of turnover to incur unemployment, the emphasis in the explanation of racial-unemployment differentials shifts to the explanation of racial differences in the level of turnover flows (and the proportion of each flow incurring unemployment).[25] By implication, a serviceable theory of dis-

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[23] Among women, the average duration of unemployment is longer for blacks (8.6 weeks compared to 7.7 weeks for whites), but does not account for the full racial unemployment rate differential. (Data are from Paul O. Flaim and Paul M. Schwab, "Changes in Employment and Unemployment," *Special Labor Force Report 129*, U.S. Bureau of Labor Statistics, 1971, Tables A-8 and A-14.) The existence of a racial difference in the duration of unemployment for women only may surprise some observers in light of several studies which indicate that racial discrimination is less severe among females. However, the duration of unemployment will normally reflect both employer decisions and the job search strategy and choices of individuals. Since greater employer racial discrimination against black females seems contrary to other evidence, one must look to job search behavior as the explanation. One factor which may play a role is the somewhat lower opportunity cost of time of black women relative to white women. However, this factor should also work in the same direction for black men. The fact that black women are much more likely than white to be the head of the family is apparently not an important factor. See Hall, *op. cit.* It is also possible that black women have fewer lucrative nonmarket opportunities than black men and thus are less prone to drop out of the labor force when they are unable to obtain a job immediately. Hall's regression results indicate, for example, that the effect of being young tends to increase black annual unemployment relative to white for females, but to greatly reduce relative unemployment of blacks for males (presumably due to labor force withdrawal). Finally, the relatively high labor force participation and job search of black wives is encouraged by the relatively low income of black husbands.

[24] This inference is further supported by work experience data. In 1968, for example, 21.6 per cent of the black population and 15.3 per cent of the white population experienced more than three spells of unemployment. The racial difference in frequency of unemployment is observed in virtually all major occupational groups. See V. Perella, "Work Experience of the Population in 1968," *Special Labor Force Report 115*, U.S. Bureau of Labor Statistics, 1970, Table C-4.

[25] The relative importance to higher turnover flows and higher unemployment probabilities is not known precisely and varies with changes in business conditions, but the available fragments of evidence suggest both are important. Blacks (particularly males) have lower average job tenure than whites, implying greater turnover. See E. O'Boyle, "Job Tenure of Workers, January, 1968," *Special Labor Force Report 112*, U.S. Bureau of Labor Statistics, 1969, Table B.

crimination must incorporate an explanation of racial turnover differentials along with the other empirical regularities listed above. There are two types of theories, the dual labor market approach and the human investment approach, representing quite different views of the labor market, which have been advanced to explain this eclectic set of labor market behavior. These are discussed in the following sections.

The Dual Labor Market Approach

One recent approach to the explanation of the foregoing observations is in the tradition of segmented labor market theory, but with different emphasis than the theories associated with British political economists of the nineteenth century. The dual labor market hypothesis focuses particularly on aberrant labor force behavior which is alleged to result from the existence of racial ghettos caused by housing segregation in major cities. One statement defines the dual labor market as:

> . . . a *primary* market offering relatively high-paying, stable employment, with good working conditions, chances of advancement and equitable administration of work rules; and a *secondary* market, to which the urban poor are confined, decidedly less attractive in all of these respects and in direct competition with welfare and crime for the attachment of the potential labor force. The high rates of unemployment, which are conventionally used to define the manpower problems of the disadvantaged, are probably better understood as symptomatic of high turnover in the secondary market.[26]

The fact that competition is presumed to exist within but not between primary and secondary markets resembles a feature of the older theories, but the dual market formulation moves further in that inaccessibility of education is not stressed as the main barrier to movement between the two types of markets.[27] Instead, barriers emphasized include the culture of the ghetto itself and overt discrimination by white employers and labor unions.

Furthermore, most econometric studies of interindustry variations in quit and layoff rates indicate that both turnover flows tend to be lower where the proportion of whites is high after controlling for other influences. See John Burton and John Parker, "Interindustry Variations in Labor Mobility," *Industrial and Labor Relations Review*, XXII (January, 1969), 199–216; and Donald Parsons, "Specific Human Capital: An Application to Quit Rates and Layoff Rates," *Journal of Political Economy*, LXXX (November-December, 1972), 1120–1143.

[26] Michael Piore, "On-the-Job Training in the Dual Labor Market: Public and Private Responsibilities in On-the-Job Training of Disadvantaged Workers," in A. Weber, F. Cassell, and W. Ginsberg, eds., *Public-Private Manpower Policies* (Madison, Wisc.: Industrial Relations Research Association, 1969), p. 102.

[27] Residential segregation does, however, facilitate discrimination in the allocation of public services, and one example is the generally inferior quality of schooling in black areas. This mechanism will tend to generate the type of "noncompeting group" stressed by Mill.

On the face of it, the approach seems consistent with the characteristics of racial economic status listed earlier. That is, the hypothesis states that ghetto life creates unstable work habits in the form of persistent turnover and absenteeism. Since these habits are costly to an employer, ghetto residents will be paid less (even in the absence of employer prejudice) and a racial wage differential will be observed. Secondly, employers will normally invest less in the training of a work force which may quit before an employer can collect a full return on his investment. Since it is on-the-job training (and complementary promotions) which imparts a curvature to age-earnings profiles, the relatively flat profiles for blacks can be related to the relatively small amount of training received, which is ultimately a function of an allegedly high propensity to quit among blacks.

Nevertheless, some skepticism concerning the value of the hypothesis seems warranted on three grounds: (1) there are difficulties with the logic of the dual labor market model as it is typically outlined, (2) the coverage of the model is too limited to serve as an explanation of racial economic differences generally, and (3) some of the barriers emphasized in the model do not appear to operate as predicted. These difficulties will be discussed in turn.

Logic of the model. In the role assigned to the segregation of blacks into racial ghettos, it is often difficult to separate cause and effect. On the one hand, ghetto life is viewed as instrumental in the development of costly, unstable work habits, but, on the other hand, high turnover and absenteeism are said to be encouraged by the nature of the jobs themselves. The market is alleged to be sufficiently casual that erratic attendance merely results in the hiring of someone else from a labor pool. Insubordination and petty theft are often accepted by employers. These descriptions beg the questions which normally occur to an economist. If the descriptions are accurate, why does it pay employers to run their businesses in this manner? Is the unit labor cost truly lower than under an organization of work which would encourage more stable attendance? If the reason on the demand side for the casual nature of employment is technological, then by implication the dual market is descriptive of only those operations whose technology encourages the use of a casual labor relationship, and the hypothesis is therefore applicable to a very limited segment of black employment.

Limited coverage. Alternatively, the hypothesis can be examined from the supply side. If certain varieties of employment are inherently unstable,

why are blacks unable to move into jobs with preferred characteristics? Either the unsuitable (costly) personal characteristics are endemic to ghetto life, or there are other barriers which preclude movement into preferred "primary" jobs. Piore has argued that "the behavioral patterns *fostered by secondary jobs* are reinforced by 'street-corner' life, a life-style widely prevalent among low-income people in general and in the black ghetto in particular."[28] If, as the quotation maintains, costly job habits are fostered by the jobs themselves rather than by extreme residential segregation, the focus of the analysis should be on the barriers to acquiring primary sector jobs in the first place.

Furthermore, it is by no means clear that "street-corner life" constitutes an *independent* barrier to better employment. While it is true that street-corner life is compatible with welfare and illegitimate activity, the choice for these nonmarket activities presumably involves a comparison with the expected benefits from market activities. Nonmarket activity could be chosen over market activity if the income (weighted by the probability of employment) that an individual's human capital can command in the market is less than the expected income from nonmarket activities (adjusted in the case of illegal activities for the probability of apprehension and punishment costs). When one recognizes that the market return will reflect wage discrimination and employment segregation, it becomes clear that the employment barrier may not be personal habits, but habits may be determined by the real barriers to market advancement. Employer discrimination can weight the choice toward nonmarket activity.[29] Given the difficulties in the structure and coverage of the model, an appraisal of the measured impact of potential barriers such as housing segregation is in order.

Predicted and actual behavior of labor market barriers. One way of testing the power of the dual market hypothesis is through an analysis of housing segregation. "Primary" employers seek to avoid the phenomenon of extreme racial residential segregation because of the poor quality of workers such a condition fosters. If the dual market hypothesis has explanatory power, the incomes of blacks with a given amount of education and experience should be a function of the extent of residential segregation in their neighborhood, for segregation becomes a proxy for costly work habits. Therefore, if the dual market hypothesis is valid, one would expect returns

[28] Piore, *op. cit.*, p. 105 (emphasis added).

[29] Another problem with the emphasis on street-corner life in the hypothesis is that adolescents are the main group in which the behavior is observed, suggesting again that the coverage of the hypothesis is too limited to explain the general characteristics of racial discrimination in the United States.

to the schooling and experience of blacks to be lower in highly segregated neighborhoods because these returns are associated with less capital accumulation. If the returns are independent of the degree of segregation, the sources of racial economic discrimination are more likely to be found in the behavior of labor market characteristics than in residential segregation.

Such an analysis can be performed using the 1960 Census data for census tracts in major cities. Data on the labor force status, income, education, age, etc., of nonwhite tract residents are available so that it is possible to estimate the relationship between income and several standard determinants for areas which differ in the proportion of black residents. Regressions of the following form[30]

$$(3)\quad \log nY_i = \log nY_o + a_1 SCHOOL_i + a_2 EXP_i + a_3 EXP^2_i + a_4 MARRY_i + a_5 UNEMP_i + e$$

were estimated from two samples of the population.[31] The first, or "segregated," sample includes census tracts in which 85 to 100 per cent of the population is nonwhite, while the second consists of tracts in which 20 to 70 per cent is nonwhite.

This model was estimated on both samples of census tracts for Chicago, which is the most segregated large northern city in the United States, and Detroit, which is somewhat less segregated. The results of the regressions are presented in Tables 1 and 2. The striking feature of the Chicago regressions is the similarity of the results for the two samples which were chosen because they reflected different degrees of residential segregation. For each pair of regressions, the estimated rates of return to schooling are quite close in magnitude. Whatever the effects of residential segregation on the amount

[30] Although it would be preferable to estimate the empirical counterpart to equation (1) above for separate samples of *individuals* living in relatively segregated and relatively integrated neighborhoods, the available data force several constraints on this analysis. The first is that the only data which permit distinctions on the basis of residential segregation are for averages of residents in a census tract. A second problem is that the logarithm of *family* income must be used as the dependent variable, since earnings data for males and females are not available at the tract level. The individual return to schooling and experience is thus further obscured by the presence of multiple earners in various families. In an effort to separate the influence of multiple earnings from other determinants of family income, the variable MARRY, the proportion of the tract population which is married and living with a spouse, is added to the basic model expressed in equation (1). Finally, the relative utilization of the tract labor force should influence the return to the residents' human capital. In the absence of a weeks worked variable, the male unemployment rate for the tract (UNEMP) is used in the analysis.

[31] The derivation of this model yields the result that the constant term of the equation will be the logarithm of the income of those with no human capital investments, log nY_o. SCHOOL is the median years of schooling, EXP_i is potential labor force experience (defined as age minus years of schooling minus the age of school entry) in tract i, and the EXP^2 term is included so that the potential experience variable can enter the equation as a quadratic and replicate the characteristic slope of the income-experience profile. The other variables are defined in the text. When the dependent variable is the logarithm of income, as in equation (3), the coefficient, a_1, can be interpreted as the rate of return to schooling.

of schooling attained, the *return* to a given level of schooling is apparently not a function of the intensity of residential segregation experienced by nonwhites.[32] With the addition of the MARRY and UNEMP variables, the return to schooling drops considerably, indicating that for both samples much of the gross return to education measured in regressions (1) and (1)' is in the form of a higher probability of marriage and multiple earners as well as more sustained employment among more highly educated population groups. The quantitative effects of marriage and unemployment are also very similar in each sample.[33] The potential experience specification has the expected signs but is not significant.

In the regressions for nonwhites in Detroit, each specification yields an estimated rate of return to schooling which is considerably *higher* in the *segregated* sample than the integrated sample (and higher than the estimates obtained from the sample of segregated tracts in Chicago!).[34] The estimates for the integrated sample again lose their statistical significance when the marriage and unemployment variables are added. Generally, the regression model performs better on the Detroit samples, with the potential experience specification attaining significance for the segregated sample and the unemployment rate now a significant depressant of family income in both samples.

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[32] Interestingly, it is only in the *integrated* sample that the statistical significance of the estimated rate of return to education falls below normal standards with the addition of the MARRY and UNEMP variables.

[33] The coefficients of MARRY indicate that increasing the per cent of a census tract's population that is married and living with a spouse by one percentage point is associated with approximately a 2 per cent increase in the average family income in a tract. Since the number of children per family in a tract will be negatively related to MARRY, the variable serves in part as a proxy for female labor force participation in the reported regressions.

[34] The substantially higher rates of return to schooling in Detroit are apparently due to the availability to blacks of primary jobs in the automobile industry, despite extensive housing segregation. Unlike Chicago, black residential areas in Detroit are relatively dispersed and are generally located near major auto plants. This suggests that to the extent housing segregation has an influence on earnings, it is via the time and direct costs of information and transportation to better jobs.

TABLE 1

NONWHITE INCOME REGRESSIONS FOR CHICAGO, BY EXTENT OF RESIDENTIAL SEGREGATION

Regression equation	Constant	SCHOOL	EXP	EXP²	MARRY	UNEMP	R^2	SE
(1)	3.64	.143	.321	−.0074			.57	.199
	(1.63)	(4.84)*	(1.61)	(−1.66)				
(1)′	4.44	.154	.197	−.0037			.51	.168
	(3.21)*	(11.06)*	(1.75)	(−1.62)				
(2)	5.59	.034	.178	−.0044	.023		.70	.167
	(2.87)*	(.90)	(1.04)	(−1.16)	(3.78)*			
(2)′	6.19	.050	.082	(−.0017)	.022		.68	.137
	(5.40)*	(2.88)*	(.887)	(−.872)	(7.87)*			
(3)	5.65	.036	.177	−.0043	.021	−.005	.71	.168
	(2.89)*	(.94)	1.03)	(−1.12)	(3.29)*	(−.86)		
(3)′	6.73	.052	.054	−.0010	.018	−.009	.70	.132
	(6.03)*	(3.10)*	(.600)	(−.558)	(6.11)*	(−3.20)*		

SOURCE: U.S. Census of Population and Housing, *Census Tract Data for Chicago SMSA*, 1960.

NOTE: Regressions marked ′ are estimated from 124 census tracts in which 85 to 100 per cent of the population is nonwhite. The remaining regressions are estimated from 36 tracts in which 20 to 70 per cent of the population is nonwhite. The numbers in parentheses are t-statistics.

* Significant at the .01 level.

TABLE 2

NONWHITE INCOME REGRESSIONS FOR DETROIT, BY EXTENT OF RESIDENTIAL SEGREGATION

Regression equation	Constant	SCHOOL	EXP	EXP²	MARRY	UNEMP	R²	SE
(1)	3.66	.226	.164	−.0024			.60	.160
	(1.26)	(7.19)[a]	(.71)	(−.49)				
(1)′	−.03	.339	.337	−.0051			.73	.155
	(−.014)	(8.30)[a]	(2.62)[a]	(−2.17)[b]				
(2)	4.85	.050	.173	−.0037	.029		.74	.130
	(2.06)[b]	(1.21)	(.92)	(−.95)	(5.39)[a]			
(2)′	1.92	.200	.247	−.0040	.023		.80	.137
	(1.10)	(3.99)[a]	(2.14)[b]	(−1.89)	(3.96)[a]			
(3)	6.60	.031	.089	−.0018	.018	−.015	.83	.108
	(3.34)[a]	(.896)	(.57)	(−.56)	(3.71)[a]	(−5.05)[a]		
(3)′	2.22	.180	.275	−.0046	.016	−.009	.82	.130
	(1.34)	(3.73)[a]	(2.51)[b]	(−2.28)[b]	(2.64)[a]	(−2.66)[a]		

SOURCE: Census of Population and Housing, *Census Tract Data for Detroit SMSA*, 1960.

NOTE: Regressions marked ′ are estimated from 56 census tracts in which 85 to 100 per cent of the population is nonwhite. The remaining regressions are estimated from 58 tracts in which 20 to 70 per cent of the population is nonwhite. The numbers in parentheses are t-statistics.

[a] Significant at the .01 level.

[b] Significant at the .05 level.

These results strongly indicate that *for a given set of characteristics* the market productivity of blacks is apparently not depressed by the fact of ghetto residence (although the set of characteristics that an individual *brings* to the market is influenced by segregation). These results, therefore, do not appear to be consistent with dual labor market hypotheses which claim that unstable work behavior bred by ghetto life is the main barrier to jobs in the primary market. Moreover, these results clearly show that whatever the forces that depress black economic status, they tend to depress the income of all blacks, irrespective of place of residence.

The Human Investment Approach

There is an alternative approach to the analysis of economic discrimination against blacks which emphasizes behavior in the labor market (rather than the allocation of public services) and does not depend on segmentation of the labor market by various institutional barriers. In this alternative framework, the tastes, and hence prejudices, of employers and workers can be accorded a direct role in the determination of racial economic status.

The basis of this alternative is the distinction drawn in the theory of investment in on-the-job training between general training, which raises the productivity of an individual in the labor market generally, and firm-specific training, which raises his productivity to the firm but not the market at large. Since market forces guarantee that an individual will receive the full return on any general training investment, the firm will not usually pay for such training, since there is no way of collecting a return by paying the worker less than he is worth in future years. When a worker is specifically trained, however, his productivity is greater to the firm than to the market. It is, therefore, possible to pay the worker more than his alternative wage but less than his marginal product.[35]

The presence of specific training can have a substantial influence on the turnover decisions of firms and individuals. As pointed out in Becker's original analysis, if the firm pays for the entire investment and therefore attempts to collect the entire return by paying the worker his alternative (generally trained) wage, the probability of suffering a capital loss from the quitting of trained individuals is relatively high. Conversely, if the individual pays the full training cost, and thus captures the full return by insisting on a wage equal to his marginal product, he risks a capital loss due to

[35] The distinctions between general and specific training were first developed by Becker, *op. cit.*, and have recently been elaborated with respect to quit and layoff behavior by Parsons, *op. cit.*

layoff during cyclical fluctuations. It becomes clear that the optimal arrangement is a sharing of the costs and returns of specific training by both parties. The proportions in which each party shares these costs depends in part on the sensitivity of quits to wages.[36]

Occupational segregation. We can now relate the elements in this theory to the observed features of racial differences in economic status in the United States. First, the age-earnings profile of any group of workers reflects the amount of human investment made over a lifetime. Indeed, the tailing off of these profiles in later life reflects optimizing behavior—a decline in investment as the period of time over which a return can be collected diminishes. If training is viewed as the major post-school investment, the differences in profiles can be interpreted as indicating that for a given level of education, white incomes rise relatively steeply due to earnings increments associated with specific on-the-job training, whereas black profiles are flat because blacks do not receive such training. Differences in training received over time alone could account for the growth in absolute wage differences between the races with age. Training, of course, is an important element in promotion, so that a further implication of this analysis is that whites move up a job ladder more rapidly than blacks (i.e., that training-induced promotions account for an important part of the different racial lifetime earnings profiles).

This interpretation of the differences in age-earnings profiles finds some support in recent empirical work. One study concluded that blacks invested less in on-the-job training than whites.[37] However, the method of this study restricted the conclusions to investments made by individuals—it was not possible to estimate the costs of training borne by firms. In a 1966 survey of men aged 45 to 59 years, 51 per cent of the whites but only 30 per cent of the blacks had received some post-school training.[38] An alternative approach would be to ask whether the effects of total on-the-job training, irrespective of sources of financing, are observed for both races. As noted above, the vertical progress of a worker through the occupational structure is one indication of the existence of productive training investment. A recent analysis of data from a retrospective survey of work history indicates that blacks do not move through the occupational structure as rapidly as whites. Indeed, the data indicate that for whites increases in income over time are

[36] The conditions are developed at length in Parsons, *op. cit.*

[37] Jacob Mincer, "The Distribution of Labor Incomes. . . ."

[38] U.S. Department of Labor, Manpower Administration, *The Pre-Retirement Years*, Manpower Research Monograph No. 15, 1970.

largely associated with occupational changes, whereas blacks tend to increase their income within a given occupational category.[39]

Turnover. In addition to providing an explanation for occupational segregation and the different age-earnings profiles of whites and blacks, the theory of specific training investment can simultaneously explain the differences in turnover behavior that are the main source of racial unemployment rate differentials. To the extent that specific capital investments raise a worker's wage above what he can receive in other firms, but raise his marginal product to his present employer above his wage, the incentive for the worker to quit and the firm to lay him off in the face of small demand fluctuations, is greatly reduced. Therefore, this theory also yields the prediction that those with the least amount of specific training would have the highest turnover rates, on the basis of standard economic motivations alone. By implication, the unemployment associated with turnover would raise the unemployment rate for those with little specific training.

Thus, once differences in specific training occur, they appear to explain many of the most commonly observed racial differences in economic behavior. Nevertheless, this theory faces one major difficulty—it does not as yet explain why blacks apparently receive less specific training than whites. From the employer's point of view, the decision to finance specific training would depend on the expected employment stability of a prospective trainee. With respect to financing the specific training of blacks, two comments may be made. First, there is remarkably little knowledge as to whether blacks are *inherently* less stable workers than whites. The role of race variables in interindustry quit rate studies does not provide a reliable guide because the existing studies do not consider the role of discrimination in turnover behavior. For example, econometric quit rate studies generally show a strong inverse relation between the quit and wage rates. At the same time, other studies persistently find evidence of wage discrimination against blacks. When we note that blacks experience wage discrimination and seem to have a somewhat higher average quit rate than whites, have we learned anything about cause and effect?

The second point is that when employers are uncertain about the employment stability of job applicants, they can generally protect themselves against capital loss by shifting a larger proportion of the training costs and returns to the trainee, who then accepts a lower wage during the training

[39] Coleman, *et al.*, *op. cit.*

period but receives a higher post-training wage than would have been paid if the firm financed a larger proportion of the training.[40]

Summary and Conclusions

The purpose of this paper was to review the relevance of received labor market segmentation theories to the analysis of racial differences in economic status. The models advanced by nineteenth century British political economists do not seem appropriate in their most stringent form. Occupational heredity is no longer as pervasive as these economists believed, and a minimum quantity of education is now available to all. Nevertheless, the older models of noncompeting groups, resting as they did on inequality of educational opportunity, clearly have some relevance for the plight of blacks in the United States today, although the mechanisms producing inequality are different. Presently, it is the inferior *quality* of education allocated to the black population of urban ghettos which represents the major difference in educational opportunity and tends to discourage investment in schooling by blacks. Recent evidence suggests that the relative quality of black education in urban ghettos of large northern and southern cities is lower than in the less densely populated areas of the South where racial differences in educational resources were traditionally viewed as most extreme.[41] Indeed, inferior educational opportunity and inferior access to other public services may be the major cost to blacks of residential segregation, for the returns to a given level of education do not appear to be sensitive to the degree of segregation, as some contemporary segmented market theories suggest.

Nevertheless, empirical studies repeatedly indicate that racial economic discrimination involves more than differences in educational opportunity. Elements of the labor market play an independent role. But here the evidence reviewed above reveals a paradox: although there is a definite racial duality in economic status, institutional barriers which are commonly cited in defining a dual labor market do not appear to play their assigned role. Instead, the evidence indicates that the major market barrier to racial equality in economic status is lack of access to specific on-the-job training. This places the burden of discrimination within the firm and requires that

[40] Interestingly, the possibility for this type of behavior is now circumscribed by the Civil Rights Act of 1964 and several state fair employment practice laws as well, for if the employer develops a different strategy for financing training by race, wages will differ by race for a given amount of training. For example, if the employer requires blacks to pay for a higher proportion of training than whites, they will receive a lower wage than white trainees during the training period and a higher wage than whites thereafter. This does not, of course, explain racial differences in specific training that preceded these laws.

[41] L. Weiss and J. Williamson, "Black Education, Earnings and Interregional Migration: Some New Evidence," *American Economic Review*, LXIII (June, 1972), 372–383.

a dual market theory explain the persistence of barriers to training when competitive forces would normally work to integrate a firm at all occupational levels for which both races could qualify. White prejudice and black work habits are frequently cited and possibly complementary explanations.

If the barrier is the prejudice of white employers and employees, projections of the future relative economic status of blacks require some knowledge of the determinants of prejudice. Although far from complete, current knowledge suggests optimism regarding the direction if not the magnitude of change. Prejudice, as measured by the degree of wage discrimination, is greater in the South and in states with relatively large foreign-born populations and is inversely related to the per capita income level of a state.[42] Therefore, the migration of blacks from the South, increasingly restrictive U.S. immigration laws, and economic growth should generally reduce prejudice over time, while enforcement of the Civil Rights Act of 1964 should mitigate some of the more blatant consequences of prejudice.

There is even less prejudice on racial differences in work habits. The studies reviewed in this paper indicated that blacks appeared to have somewhat higher turnover than whites, although the empirical analysis did not support the hypothesis that housing segregation is an independent source of instability. Nevertheless, the possibility that instability is induced by wage discrimination and occupational segregation remains an open question until the feedback relations between discrimination and black employee turnover behavior are ascertained.

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[42] Robert J. Flanagan, "Racial Wage Discrimination and Employment Segregation," *Journal of Human Resources*, VIII (Fall, 1973).